

ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
CEM. CONC.	CEMENT CONCRETE
C.I.	CAST IRON
C.L.	CEMENT LINED
EP	EDGE OF PAVEMENT
EP (AM)	AS MEASURED
RET WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VCC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
VCC	VERTICAL CONCRETE CURB
CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE

LEGEND

SURVEY SYMBOLS

- REBAR
- ANGLE IRON
- CONCRETE BOUND WITH DRILL HOLE
- STONE BOUND
- STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST
- BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- EXHAUST VENT
- AIR VENT
- DRAINAGE SUMP
- ELECTRIC MANHOLE
- SEWER MANHOLE
- DRAIN MANHOLE
- TELEPHONE MANHOLE
- DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATOR VALVE
- UTILITY POLE
- YARD LIGHT
- RIP RAP
- BOLLARD
- SIGN
- FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

LINE DESIGNATORS

- WATER MAIN
- OVERHEAD WIRES
- GAS LINE
- WATER SERVICE
- UNDERGROUND ELECTRIC
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DRAINAGE SWALE
- CHAIN LINK FENCE

REV	DATE	DESCRIPTION
1	3/15/21	WIDEN ROADWAY
2	6/7/21	DRAINAGE REVISION
3	6/29/21	DRAINAGE REVISION

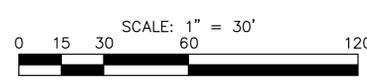
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SITE DEVELOPMENT PLAN

ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90

ROCKLAND, MASSACHUSETTS



PARKING CALCULATIONS
ARTICLE V, SECTION 415-35 - OFF-STREET PARKING REQUIREMENTS

COMPONENT	REQUIRED (ROCKLAND ZONING BYLAW)	REQUIRED	PROPOSED
DWELLINGS (TWO-FAMILY OR MULTI-FAMILY RESIDENCE)	3 PER DWELLING UNIT (30% ALLOWABLE COMPACT VEHICLE SPACES)	PROPOSED DUPLEX (APN 34-83): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED DUPLEX (APN 34-90): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED BUILDING A (LOT 1): 7 UNITS X 3 SPACES = 21 SPACES	11 - GARAGE 8 - DRIVEWAY (10'x20') 2 - STRIPED COMPACT SPACES (9'x18') 1 - STRIPED PARALLEL PARKING SPACE (10'x23') TOTAL: 22 (2 COMPACT)
		PROPOSED BUILDING B (LOT 2): 5 UNITS X 3 SPACES = 15 SPACES	10 - GARAGE 3 - STRIPED COMPACT SPACES (9'x18') 2 - STRIPED PARKING SPACES (10'x20') TOTAL: 15 (3 COMPACT)

LAND USAGE TABLES

ARTICLE V - BUILDING, LOT AND GENERAL DISTRICT REGULATIONS

CRITERIA	RESIDENTIAL (R-2) & BUSINESS (B-1) ZONING DISTRICT					
	RESIDENTIAL (R-2) REQUIRED	BUSINESS (B-1) REQUIRED	LOT 1 (BUILDING A) PROPOSED	LOT 2 (BUILDING B) PROPOSED	APN 34-83 PROPOSED	APN 34-90 PROPOSED
MIN. LOT AREA	32,670 S.F.	-	28,590 S.F.	27,572 S.F.	12,320 S.F.	11,200 S.F.
MIN. FRONTAGE AND LOT WIDTH	110 FT.	110 FT.	110 FT.	113.6 FT.	75 FT.	75 FT.
MAX. HEIGHT	2.5 STORIES/30 FT.*	3 STORIES/36 FT.	33 FT.	33 FT.	22 FT.	22 FT.
MAX. BUILDING COVERAGE	30%	80%	21.6%	13.4%	12.8%	14.1%
MAX. DWELLING UNITS PER 32,670 S.F.	1: TWO-FAMILY RESIDENCES PERMITTED AS PRINCIPAL USE	8	7 PROPOSED UNITS, 7 UNITS ALLOWED	5 PROPOSED UNITS, 6.75 UNITS ALLOWED	2 PROPOSED UNITS	2 PROPOSED UNITS
MIN. FRONT YARD	25 FT.	-	37.3 FT.	3.5 FT.	30.0 FT.	30.0 FT.
MIN. SIDE YARD	15 FT.	**	28.4 FT.	28.4 FT.	15.3 FT.	15.3 FT.
MIN. REAR YARD	50 FT.	**	17.1 FT.	7.9 FT.	94.3 FT.	79.4 FT.

* THE MAXIMUM HEIGHT (STORIES/FEET) MAY BE INCREASED TO 3.0/36 ON LOTS WITH AN AREA OF 32,670 S.F. OR GREATER AND THAT THE STRUCTURE MEETS ALL THE CURRENT SETBACKS.
** THE MINIMUM YARD DIMENSION ABUTTING ANY RESIDENTIAL DISTRICT SHALL BE 30 FT.

NOTES

- TRANSITION YARD REQUIREMENTS, FRONT YARD. WHERE A RESIDENCE DISTRICT ABUTS A NON-RESIDENCE DISTRICT, THERE SHALL BE PROVIDED IN THE NON-RESIDENCE DISTRICT FOR A DISTANCE OF 50 FT. FROM THE DISTRICT BOUNDARY LINE, A FRONT YARD AT LEAST EQUAL IN DEPTH TO THAT REQUIRED IN THE RESIDENCE DISTRICT.
- TRANSITION YARD REQUIREMENTS, SIDE OR REAR YARD. WHERE THE SIDE OR REAR YARD IN A RESIDENCE DISTRICT ABUTS A SIDE OR REAR YARD IN A NON-RESIDENCE DISTRICT, THERE SHALL BE PROVIDED ALONG SUCH ABUTTING LINES, A SIDE OR REAR YARD AT LEAST EQUAL IN DEPTH TO THAT REQUIRED IN THE RESIDENCE DISTRICT. IN NO CASE, HOWEVER SHALL THE ABUTTING SIDE OR REAR YARD BE LESS THAN 20 FT.
- ALL RESIDENTIAL ZONES AND THE BUSINESS B-1 DISTRICT, ALL PARKING AREAS, LOADING AREAS, AND AREAS USED FOR ACCESS, EGRESS OR ONSITE CIRCULATION SHALL BE SET BACK A MINIMUM OF 10 FEET FROM ANY PROPERTY LINE AND THE TEN-FOOT SETBACK SHALL BE PROPERLY LANDSCAPED AND MAINTAINED.

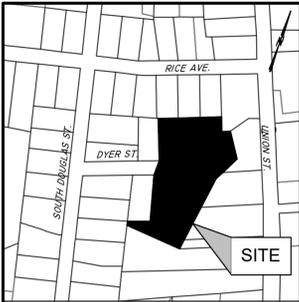
PROFESSIONAL ENGINEER:

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

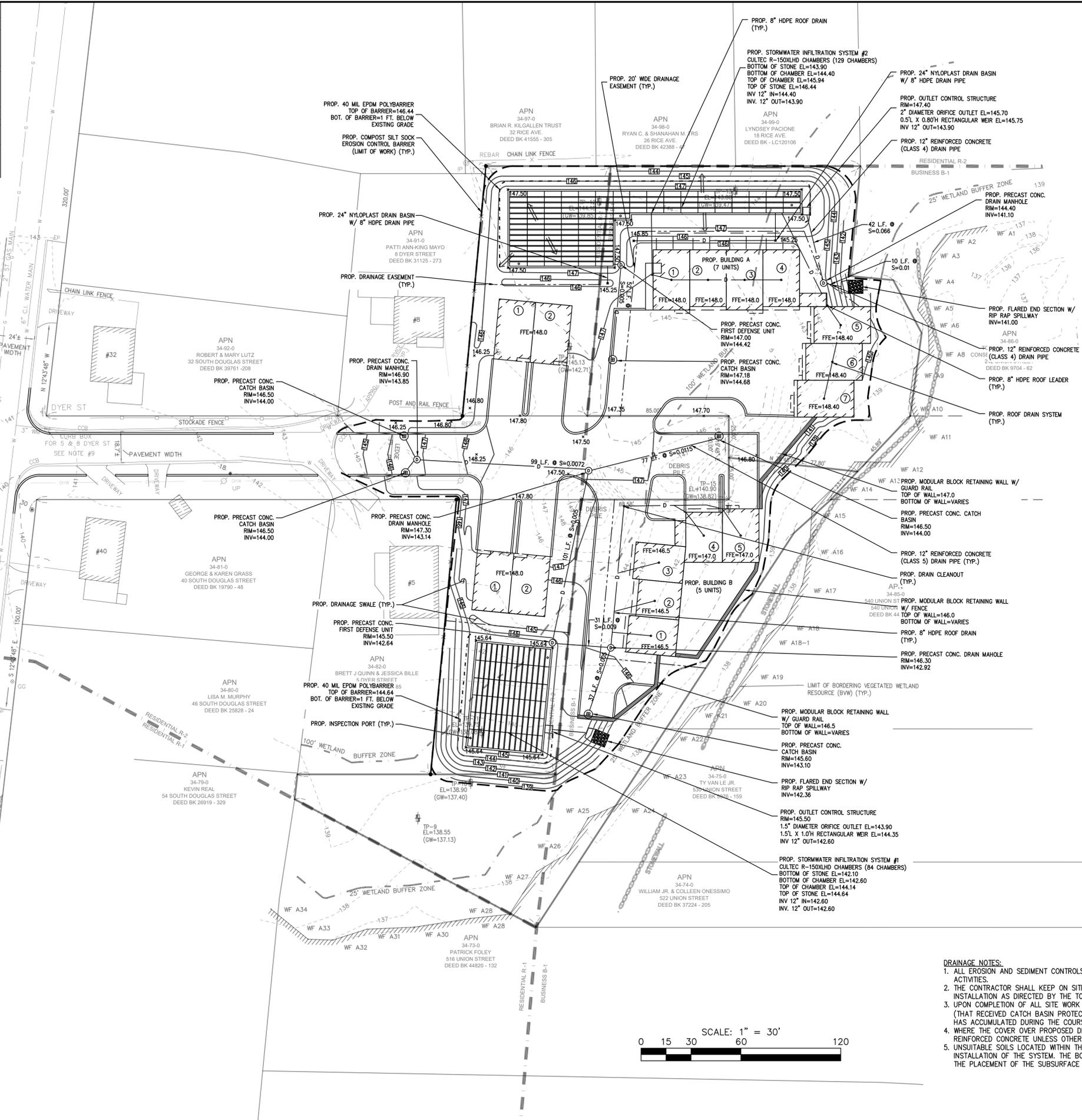
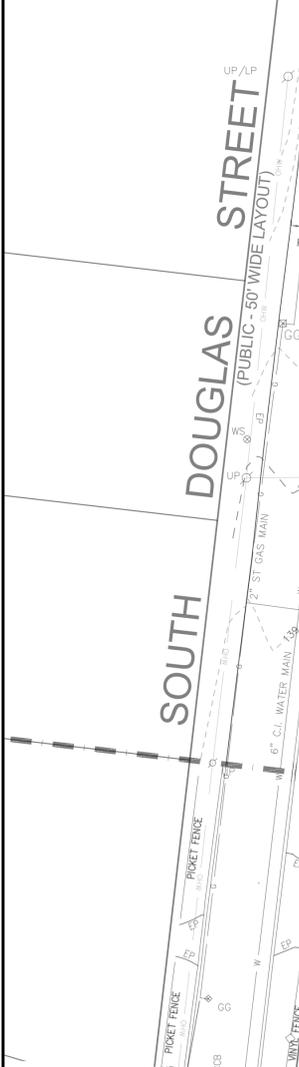
DRAWN BY: ESS
DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
SCALE: 1" = 30'
PROJECT NO.: 220-163
DWG. TITLE:

SITE LAYOUT PLAN

DWG. NO.: **C-1**



LOCUS MAP
1"=300'



ABBREVIATIONS

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LEGEND

SURVEY SYMBOLS

- REBAR
- ∨ ANGLE IRON
- CB/DH □ CONCRETE BOUND WITH DRILL HOLE
- SB □ STONE BOUND
- SB/DH □ STONE BOUND

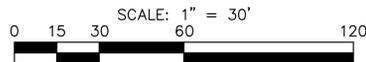
UTILITY SYMBOLS

- CHIMNEY
- ⊕ ELECTRIC HAND HOLE
- ⊕ GUY POLE
- ⊕ GUY WIRE
- ⊕ HVAC UNIT
- ⊕ BUILDING LIGHT W/MAST
- ⊕ BUILDING LIGHT
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- ⊕ HYDRANT
- ⊕ POST INDICATOR VALVE
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- ⊕ RYD LIGHT
- ⊕ RIP RAP
- ⊕ BOLLARD
- ⊕ SIGN
- ⊕ FA FIRE ALARM
- ⊕ DECIDUOUS TREE
- ⊕ CONIFEROUS TREE

LINE DESIGNATORS

- W — WATER MAIN
- OHW — OVERHEAD WIRES
- G — GAS LINE
- WS — WATER SERVICE
- E — UNDERGROUND ELECTRIC
- D — STORM DRAIN LINE
- S — SANITARY SEWER LINE
- S — DRAINAGE SWALE
- X — CHAIN LINK FENCE

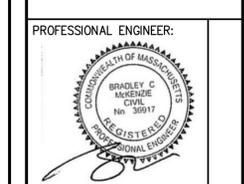
- DRAINAGE NOTES:**
- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
 - THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES, ADDITIONAL SILTATION FENCING AND FILTER FABRIC FOR INSTALLATION AS DIRECTED BY THE TOWN TO MITIGATE ANY EMERGENCY CONDITIONS.
 - UPON COMPLETION OF ALL SITE WORK THE CONTRACTOR SHALL INSPECT ALL ON-SITE AND OFF-SITE CATCH BASINS (THAT RECEIVED CATCH BASIN PROTECTION) AND DRAINAGE MANHOLES AND REMOVE ALL SEDIMENT AND DEBRIS THAT HAS ACCUMULATED DURING THE COURSE OF CONSTRUCTION.
 - WHERE THE COVER OVER PROPOSED DRAINAGE PIPES IS LESS THAN 2.5 FEET, THE DRAINAGE PIPE SHALL BE CLASS 5 REINFORCED CONCRETE UNLESS OTHERWISE SPECIFIED.
 - UNSATURABLE SOILS LOCATED WITHIN THE LIMITS OF THE SUBSURFACE INFILTRATION SYSTEMS SHALL BE REMOVED PRIOR TO INSTALLATION OF THE SYSTEM. THE BOTTOM OF EXCAVATION SHALL BE INSPECTED BY THE PROJECT ENGINEER PRIOR TO THE PLACEMENT OF THE SUBSURFACE CHAMBERS.



REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WETLAND ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM



SITE DEVELOPMENT PLAN
 ASSessor's MAP 34, LOTS 83, 84, 87, 88, 89 & 90
 DYER STREET
 ROCKLAND, MASSACHUSETTS

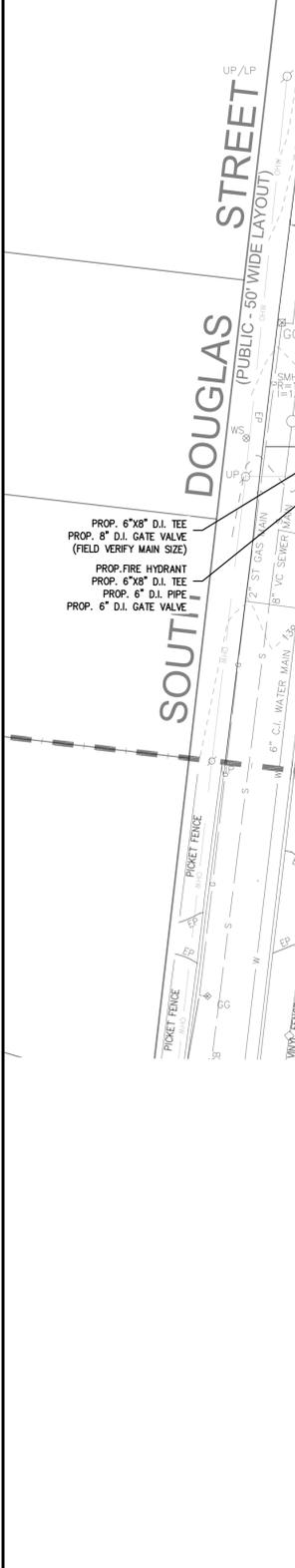


APPLICANT:
GASPAR INVESTMENT INC.
 265 WILLIS AVE.
 MEDFORD, MASSACHUSETTS 02155

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DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1" = 30'
PROJECT NO.:	220-163
DWG. TITLE:	GRADING AND DRAINAGE PLAN
DWG. NO.:	C-2



LOCUS MAP
1"=300'



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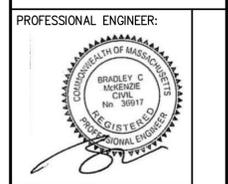
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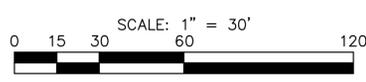
SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS



APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVENUE
MEDFORD, MASSACHUSETTS 02155

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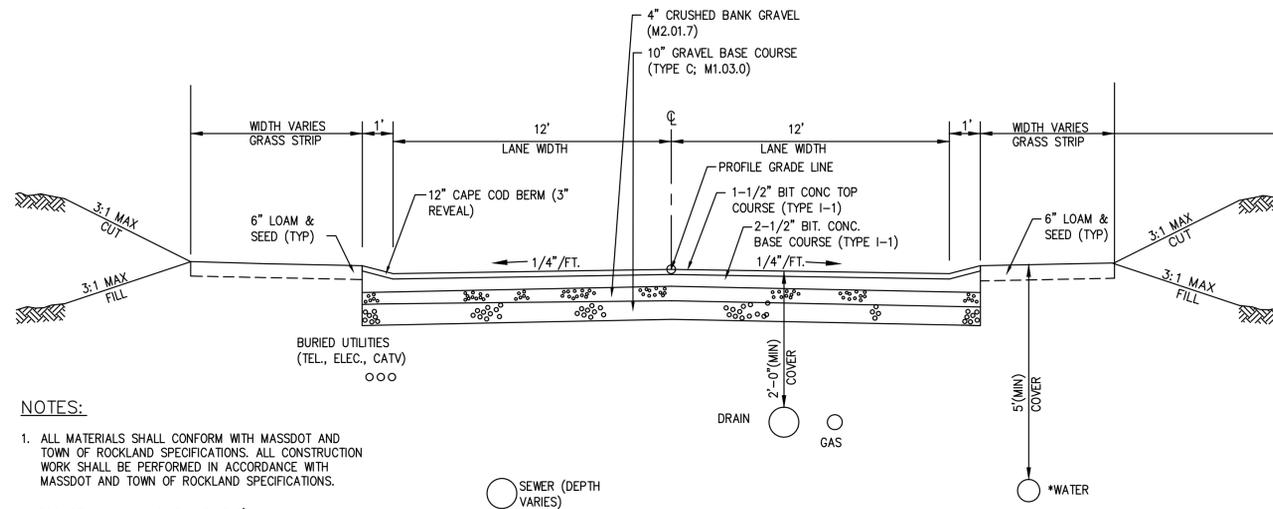
UTILITY PLAN
DWG. NO.: **C-3**



- UTILITY NOTES:**
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
 - THE CONTRACTOR SHALL COORDINATE ALL STREET WORK WITH THE ROCKLAND DPW.
 - THE CONTRACTOR SHALL EXCAVATE THE TEST PITS PRIOR TO INSTALLING THE DOMESTIC WATER SERVICE TO VERIFY THE ELEVATIONS AND LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH THE RESULTS PRIOR TO COMMENCING ANY WORK.
 - THE WATER SERVICE SHALL BE INSTALLED WITH 5' OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE.
 - THE DOMESTIC WATER SERVICE SHALL BE 1" COPPER (TYPE K) FOR PROPOSED DUPLEXES (APN'S 34-83-0 & 34-90-0). THE DOMESTIC WATER SERVICES SHALL BE 4" CEMENT LINED DUCTILE IRON PIPE (C.L.D.I.) (CLASS 52) FOR PROPOSED MULTI-FAMILY BUILDINGS (BUILDINGS A & B).
 - ALL WATER SERVICE APPURTENANCES, MATERIALS, METHODS OF INSTALLATION SHALL MEET OR EXCEED ALL LOCAL MUNICIPAL REQUIREMENTS.
 - THE DOMESTIC WATER SERVICE SHALL BE ADEQUATELY PROTECTED AGAINST BACKFLOW (BACKFLOW PREVENTION) AT THE BUILDING.
 - AFTER PRESSURE TESTING AND CHLORINATION IS COMPLETED, SAMPLES SHALL BE TAKEN FROM THE DOMESTIC WATER SERVICE AND SHALL BE TESTED AT 200 PSI FOR A MINIMUM OF 2 HOURS. THE CONTRACTOR IS REQUIRED TO NOTIFY THE ABINGTON ROCKLAND JOINT WATER WORKS AT LEAST 24 HOURS PRIOR TO THE TESTING.
 - THE DOMESTIC WATER SERVICE SHALL BE TESTED IN ACCORDANCE WITH DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS. A MINIMUM OF 2 SEPARATE WATER SAMPLES SHALL BE TESTED AT A STATE CERTIFIED LABORATORY.
 - A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN SANITARY SEWER SERVICES AND WATER SERVICE. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER SERVICE, THE ELEVATION OF THE CROWN OF THE SEWER SHALL BE AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER SERVICE. ALL OTHER UTILITIES REQUIRE MINIMUM 5' SEPARATION FROM OTHER UTILITIES.
 - ALL GRAVITY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) SDR-35 UNLESS OTHERWISE NOTED.
 - WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL-JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
 - THE LOCATIONS OF PROPOSED ELECTRIC, TELEPHONE AND COMMUNICATION (E.T.C.) SERVICES ARE APPROXIMATE. THE PROJECT ELECTRICAL ENGINEER SHALL VERIFY THESE LOCATIONS PRIOR TO THE START OF CONSTRUCTION. COORDINATE ALL E.T.C. WORK WITH THE APPROPRIATE UTILITY COMPANIES.
 - THE PROPOSED GAS SERVICE LOCATION IS APPROXIMATE ONLY. THE CONTRACTOR SHALL COORDINATE THE GAS SERVICE INSTALLATION WITH THE MUNICIPAL GAS COMPANY.
 - ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH ROCKLAND DEPARTMENT OF PUBLIC WORKS AND ABINGTON ROCKLAND JOINT WATER WORKS SPECIFICATIONS.
 - ALL EXISTING UTILITIES WITHIN THE SITE ARE TO BE REMOVED UNLESS OTHERWISE STATED TO REMAIN.



LOCUS MAP
1"=300'



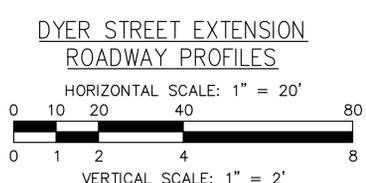
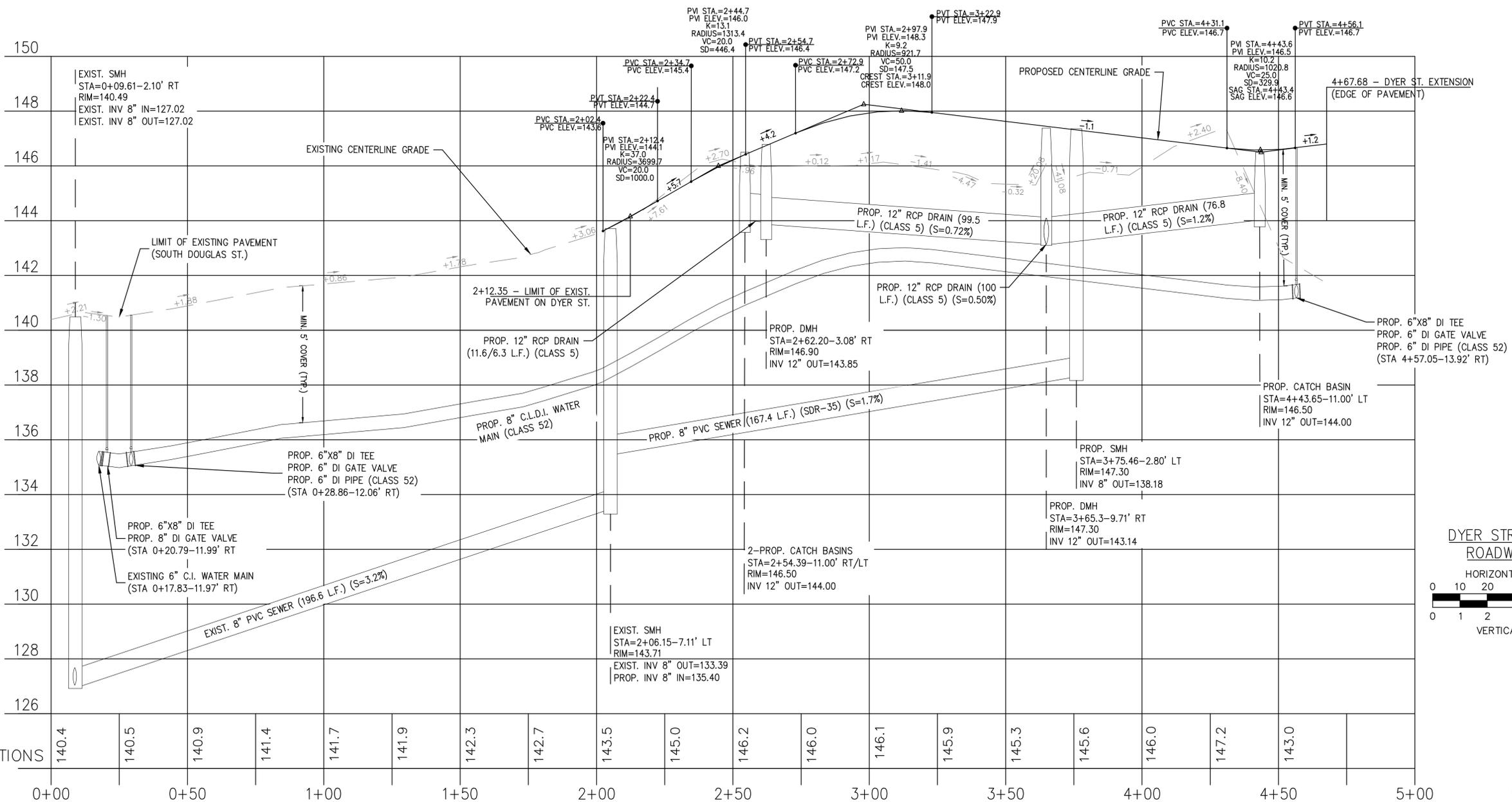
NOTES:

1. ALL MATERIALS SHALL CONFORM WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS.

*PROVIDE A MINIMUM DISTANCE OF 3' BETWEEN THE WATER MAIN AND ANY DRAIN STRUCTURE, TO PREVENT FREEZING.

DYER STREET EXTENSION CROSS SECTION
STA 2+02.4-4+67.68

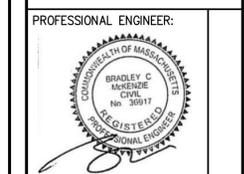
NOT TO SCALE



REV	DATE	DESCRIPTION
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2	6/7/21	DRAINAGE REVISION
3	6/29/21	DRAINAGE REVISION

MG
MCKENZIE
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SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
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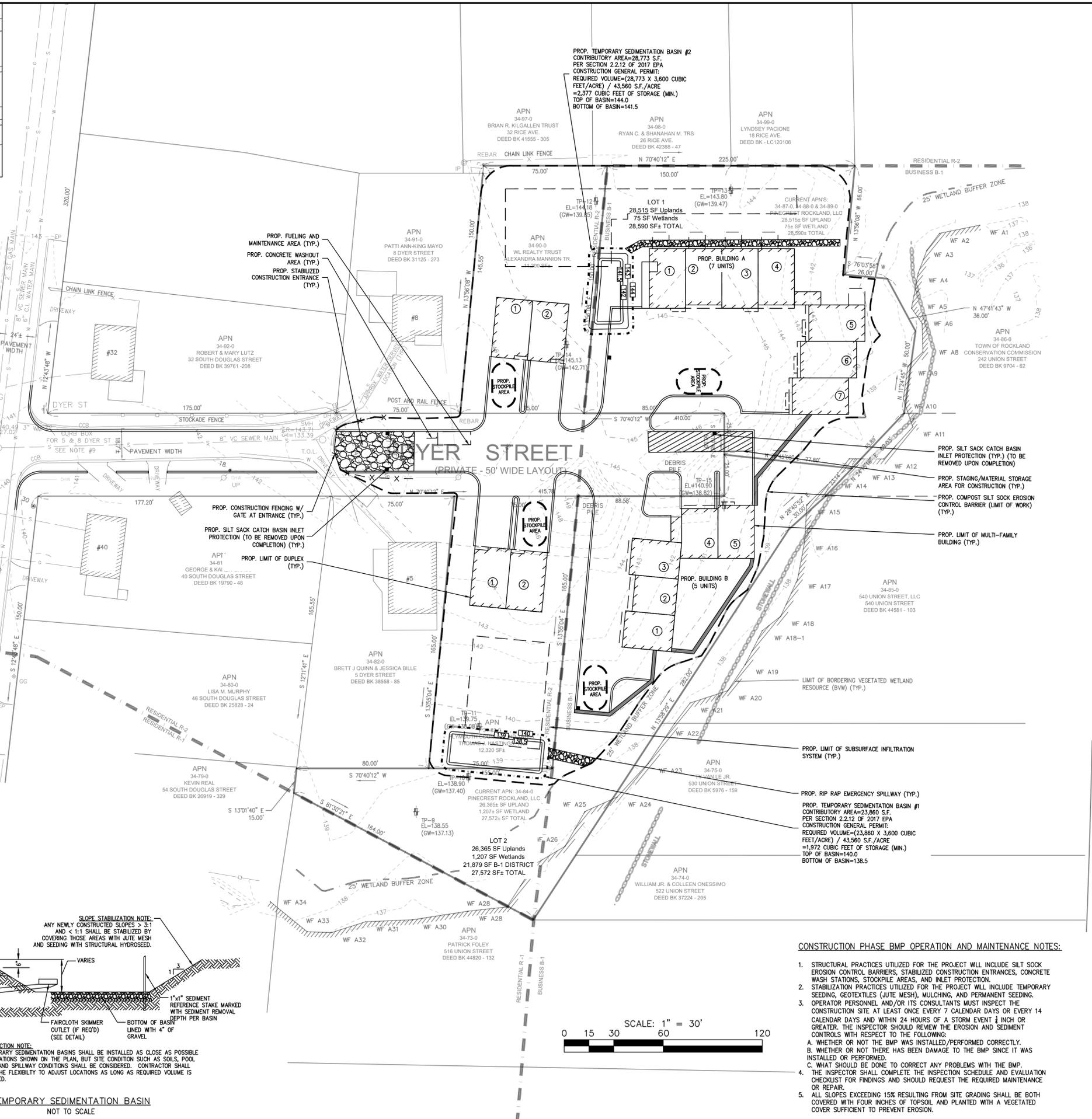
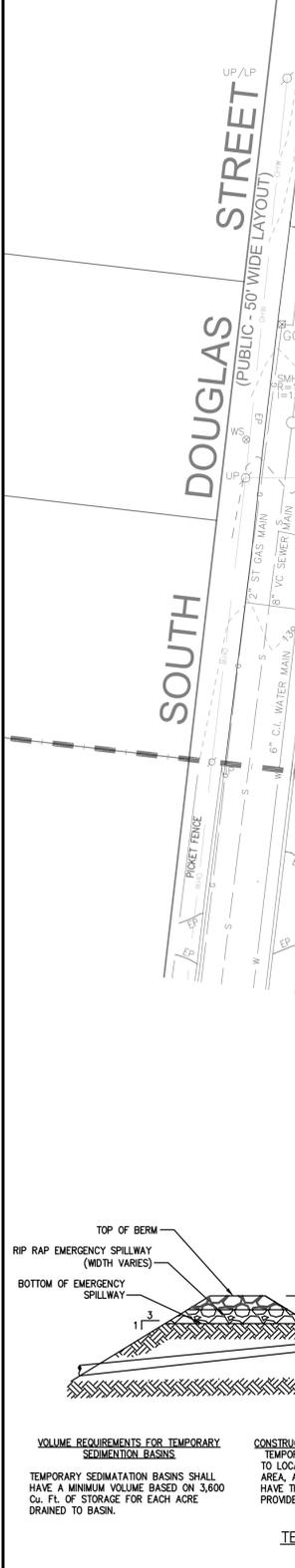
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DATE: OCTOBER 23, 2020
SCALE: AS NOTED
PROJECT NO.: 220-163
DWG. TITLE:

ROADWAY PROFILE
DWG. NO.: **C-4**

PERMIT PLAN SET



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- FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

LINE DESIGNATORS

- WATER MAIN
- OVERHEAD WIRES
- GAS LINE
- WATER SERVICE
- UNDERGROUND ELECTRIC
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DRAINAGE SWALE
- CHAIN LINK FENCE

CONSTRUCTION SEQUENCE

TO PREVENT EXCESSIVE EROSION AND SILTING, THE FOLLOWING CONSTRUCTION SEQUENCE COUPLED WITH OTHER WIDELY ACCEPTED PRINCIPALS FOR REDUCING EROSION AND SEDIMENTATION SHALL BE IMPLEMENTED IN THE DEVELOPMENT OF THE SITE.

- THE CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING PRIOR TO ANY CONSTRUCTION ACTIVITY.
- STABILIZATION PRACTICES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. REFER TO "EROSION AND SEDIMENTATION CONTROL" SECTION OF THIS PLAN & PLACE SILTATION FENCE ON THE SITE PLANS.
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
- CLEAR AND GRUB UP AS REQUIRED FOR THE CONSTRUCTION OF THE ROADWAY, PARKING AREAS AND RELATED INFRASTRUCTURE.
- CONSTRUCT TEMPORARY SEDIMENTATION BASINS AND EROSION CONTROL MITIGATION. EXCAVATE TOPSOIL AND SUBSOIL FROM CUT AND FILL AREAS AND STOCKPILE ON SITE IN LOCATIONS SHOWN ON THE PLAN. CONSIDERATION SHOULD BE GIVEN TO LOCATING STOCKPILES ON THE UPHILL SIDE OF DISTURBED AREAS, WHERE POSSIBLE, TO ACT AS TEMPORARY DIVERSIONS.
- CONSTRUCT CUT AND FILL AREAS, INSTALLING STRAWBALE CHECK DAMS AT TOES OF ALL 3:1 OR GREATER SLOPES, AND AT ENDS OF ALL CUT AREAS. ALL FILL WILL BE INSTALLED USING 12" MAXIMUM COMPACTION LIFTS. PLACE ALL SLOPE PROTECTION WHERE INDICATED ON THE PLAN. THE STORMWATER SUBSURFACE INFILTRATION SYSTEMS SHALL BE CONSTRUCTED IMMEDIATELY AFTER THE ROADWAY ROUGH GRADING IS COMPLETED AND THE AREA HAS BEEN CLEARED OF VEGETATION.
- INSTALL CLOSED DRAINAGE SYSTEM ON DYER ST., AND EXTEND OTHER UTILITIES FROM SOUTH DOUGLAS STREET. UTILITIES SHALL BE STUBBED AT PROPERTY LINES AS NEEDED. ALL CATCH BASINS SHALL BE COVERED WITH SILTSACK OR EQUIVALENT INLET PROTECTION.
- GRADE ROADWAY AND LOTS TO SUBGRADE ELEVATION AND CONSTRUCT SIDE SLOPES. APPLY TEMPORARY STABILIZATION MEASURES WHERE WARRANTED. REFER TO "EROSION AND SEDIMENTATION CONTROL" SECTION OF THIS PLAN.
- EXCAVATE AND CONSTRUCT FOUNDATIONS FOR MULTI-FAMILY BUILDINGS (BUILDINGS A & B).
- FINALIZE CONSTRUCTION OF STORMWATER SUBSURFACE INFILTRATION SYSTEMS WITH OUTLET CONTROL STRUCTURES PRIOR TO FALL 2021.
- PLACE GRAVEL SUBBASE ON ROADWAY AND MULTI-FAMILY LOTS (BUILDINGS A & B) BY FALL 2021.
- PLACE TEMPORARY SEEDING ON DISTURBED AREAS OF THE DUPLEX LOTS (APN'S 34-83 & 34-90) BY FALL 2021 TO STABILIZE THE SITE AND PROVIDE PROTECTION FROM EROSION OVER WINTER MONTHS.
- EXCAVATE AND CONSTRUCT FOUNDATIONS FOR DUPLEX BUILDINGS (APN'S 34-83 & 34-90) IN SPRING 2022.
- CONSTRUCT DUPLEX STRUCTURES WITH ASSOCIATED UTILITY CONNECTIONS. GRADE SLOPES AND STABILIZE CUT AREAS AT TOE OF SLOPE. BLEND ALL SLOPES INTO EXISTING TOPOGRAPHY AND LOAM AND SEED ALL DISTURBED AREAS. SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH. COMPLETE FINE GRADING OF SHOULDERS AND PLACE PAVEMENT IN MISCELLANEOUS AREAS.
- PLACE THE FINAL WEARING COURSE OF PAVEMENT.
- REMOVE TEMPORARY EROSION CONTROL DEVICES ONCE ADEQUATE GROWTH IS ESTABLISHED. ADEQUATE GROWTH IS DEFINED AS VEGETATION COVERING 75% OR MORE OF THE GROUND SURFACE.

GENERAL CONSTRUCTION NOTES

- STORMWATER SUBSURFACE INFILTRATION SYSTEMS WILL BE DELINEATED BY STAKES WITH CAUTION TAPE AND/OR CONSTRUCTION FENCING PRIOR TO CONSTRUCTION TO PROTECT FROM SOIL COMPACTION. NO HEAVY EQUIPMENT WILL BE ALLOWED IN THIS AREA. CARE SHOULD BE TAKEN TO PREVENT SEDIMENT INTRUSION INTO THE SUBSURFACE INFILTRATION SYSTEM AND CLOSED DRAINAGE SYSTEM DURING CONSTRUCTION AND EXCAVATION.
- TOPSOIL AND EXCAVATED STOCKPILES WILL BE STORED IN SEPARATE STOCKPILE AREAS. THE CONTRACTOR MAY ADJUST THE SIZE AND LOCATION OF STOCKPILE AREAS AS NEEDED.
- STUMPS, LOGS AND DEBRIS HINDERING CONSTRUCTION ACTIVITY SHALL BE REMOVED PRIOR TO CONSTRUCTION AND DISPOSED OF IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
- UNUSABLE MATERIAL INCLUDING THE EXISTING STOCKPILE WILL BE REMOVED AND/OR RELOCATED FROM SITE PRIOR TO CONSTRUCTION OF INDIVIDUAL LOTS.

CONSTRUCTION PHASE BMP OPERATION AND MAINTENANCE NOTES:

- STRUCTURAL PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE SILT SOCK EROSION CONTROL BARRIERS, STABILIZED CONSTRUCTION ENTRANCES, CONCRETE WASH STATIONS, STOCKPILE AREAS, AND INLET PROTECTION.
- STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESH), MULCHING, AND PERMANENT SEEDING.
- OPERATOR PERSONNEL AND/OR ITS CONSULTANTS MUST INSPECT THE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT 1/4 INCH OR GREATER. THE INSPECTOR SHOULD REVIEW THE EROSION AND SEDIMENT CONTROLS WITH RESPECT TO THE FOLLOWING:
 - WHETHER OR NOT THE BMP WAS INSTALLED/PERFORMED CORRECTLY.
 - WHETHER OR NOT THERE HAS BEEN DAMAGE TO THE BMP SINCE IT WAS INSTALLED OR PERFORMED.
 - WHAT SHOULD BE DONE TO CORRECT ANY PROBLEMS WITH THE BMP.
- THE INSPECTOR SHALL COMPLETE THE INSPECTION SCHEDULE AND EVALUATION CHECKLIST FOR FINDINGS AND SHOULD REQUEST THE REQUIRED MAINTENANCE OR REPAIR.
- ALL SLOPES EXCEEDING 15% RESULTING FROM SITE GRADING SHALL BE BOTH COVERED WITH FOUR INCHES OF TOPSOIL AND PLANTED WITH A VEGETATED COVER SUFFICIENT TO PREVENT EROSION.

SCALE: 1" = 30'

0 15 30 60 120

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PROFESSIONAL ENGINEER:
BRADLEY C. MCKENZIE
REGISTERED PROFESSIONAL ENGINEER
LICENSE NO. 30917

DRAWN BY: ESS
DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
SCALE: 1"=30'
PROJECT NO.: 220-163
DWG. TITLE: EROSION AND SEDIMENT CONTROL PLAN
DWG. NO.: ESC-1

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SITE DEVELOPMENT PLAN

ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90

ROCKLAND, MASSACHUSETTS

PERMIT PLAN SET

MCKENZIE ENGINEERING GROUP

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ABBREVIATIONS

- FFE FIRST FLOOR ELEVATION
- BIT CONC. BITUMINOUS CONCRETE PAVEMENT
- CCB CAPE COD BERM
- CEM. CONC. CEMENT CONCRETE
- C.I. CAST IRON
- C.L. CEMENT LINED
- EP EDGE OF PAVEMENT
- BC AS MEASURED BITUMINOUS CONCRETE CURB
- (AM) RETAINING WALL
- CONC. CONCRETE
- RCP REINFORCED CONCRETE PIPE
- VCC VERTICAL GRANITE CURB
- ETW EDGE OF TRAVEL WAY
- MTL METAL BERM
- VCC VERTICAL CONCRETE CURB
- CMP CORRUGATED METAL PIPE
- LSA LANDSCAPED AREA
- TRANS. TRANSFORMER
- GEN. GENERATOR
- HOPE HIGH-DENSITY POLYETHYLENE

LEGEND

SURVEY SYMBOLS

- REBAR
- ANGLE IRON
- CONCRETE BOUND WITH DRILL HOLE
- STONE BOUND
- STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST
- BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- AIR VENT
- EXHAUST VENT
- DRAINAGE SUMP
- ELECTRIC MANHOLE
- SEWER MANHOLE
- DRAIN MANHOLE
- TELEPHONE MANHOLE
- DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATOR VALVE
- UTILITY POLE
- YARD LIGHT
- RIP RAP
- BOLLARD
- SIGN
- FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

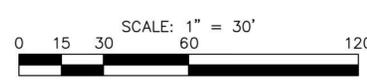
LINE DESIGNATORS

- WATER MAIN
- OVERHEAD WIRES
- GAS LINE
- WATER SERVICE
- UNDERGROUND ELECTRIC
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DRAINAGE SWALE
- CHAIN LINK FENCE

REV	DATE	DESCRIPTION
1	3/15/21	WETLAND ROADWAY
2	5/28/21	DRAINAGE REVISION
3	6/29/21	DRAINAGE REVISION



SITE DEVELOPMENT PLAN
 ASSESSOR'S MAP 34, LOTS 83, 84, 87
 88, 89 & 90
 DYER STREET
 ROCKLAND, MASSACHUSETTS



Proposed Native Plant Legend				
Symbol	Qty	Common	Botanical	Size
	7	Black Chokeberry	Aronia melanocarpa	1.5 to 2 ft. high
	5	Eastern Red Cedar	Juniperus virginiana	6 to 7 ft. high
	11	Highbush Blueberry	Vaccinium corymbosum	1.5 to 2 ft. high
	11	Inkberry	Ilex glabra	1.5 to 2 ft. high
	8	Meadowsweet	Spiraea latifolia	1.5 to 2 ft. high
	7	Red Maple	Acer Rubrum	1 to 1.5" caliper
	3	Red Oak	Quercus rubra	1 to 1.5" caliper
	5	Shadbush	Amelanchier canadensis	1.5 to 2 ft. high
	10	Sweet Fern	Comptonia peregrina	1 to 2 ft. high
	7	Sweet Gum	Liquidambar Styraciflua	1 to 1.5" caliper
	21	Sweet Pepperbush	Clethra alnifolia	1.5 to 2 ft. high
	6	Witch Hazel	Hamamelis virginiana	1.5 to 2 ft. high

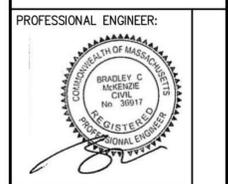
PROPOSED SEED MIX WITHIN THE 100 FOOT BUFFER ZONE TO CONSIST OF THE SEED MIX PROFILE BELOW WHERE EVER



SHOWY NORTHEAST NATIVE WILDLIFE & GRASS SEED MIX

General Product Information:
 The native wildflowers and some grasses provide a gorgeous display of color from spring to fall. Designed for upland sites with well-drained soils and full sun to semi-shaded areas; ideal for attracting butterflies and hummingbirds. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-153
Product Categories:
 Pollinator Favorites, Uplands & Meadows
Height: 1.0 - 5.0 Ft
Seeding Rate: 20 lbs/acre with 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 Jul) or grain rye (1 Aug to 31 Dec).

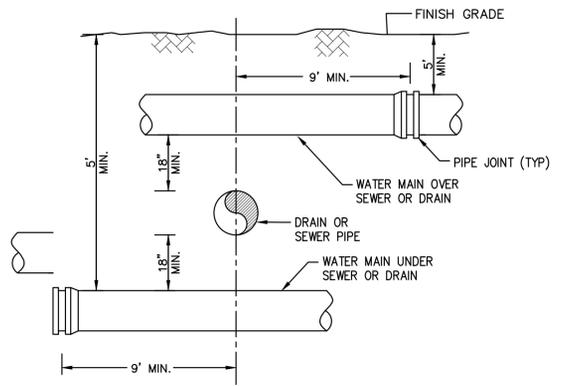


PROFESSIONAL ENGINEER:
 BRADLEY C. MCKENZIE
 CIVIL
 No. 30017
 REGISTERED PROFESSIONAL ENGINEER
 COMMONWEALTH OF MASSACHUSETTS

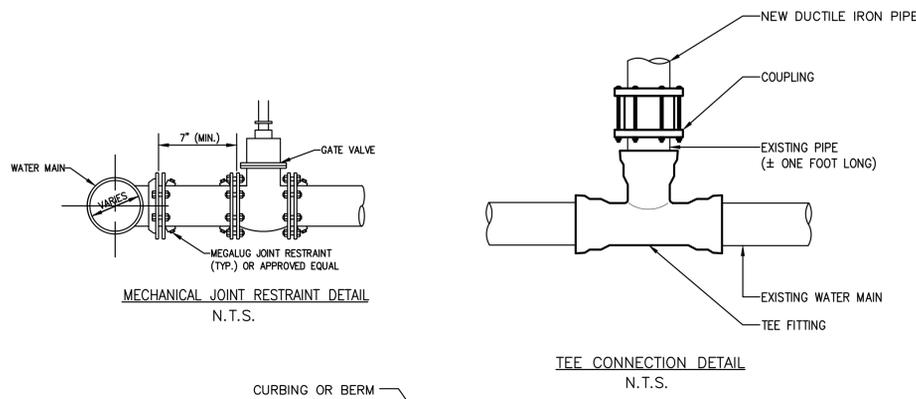
DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1" = 30'
PROJECT NO.:	220-163
DWG. TITLE:	

LANDSCAPING PLAN

DWG. NO.: **LA-1**

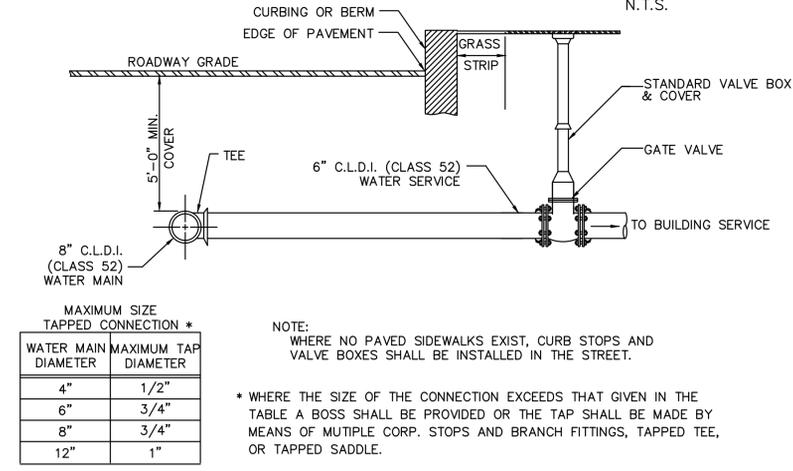


SEWER OR DRAIN CROSSING DETAIL
N.T.S.



MECHANICAL JOINT RESTRAINT DETAIL
N.T.S.

TEE CONNECTION DETAIL
N.T.S.

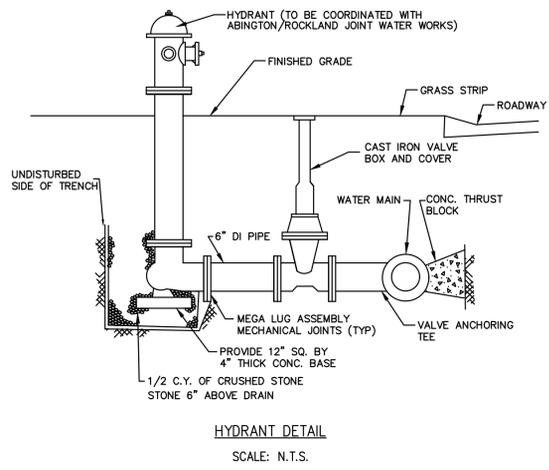


WATER SERVICE CONNECTION (BUILDINGS A & B)
N.T.S.

MAXIMUM SIZE TAPPED CONNECTION *	
WATER MAIN DIAMETER	MAXIMUM TAP DIAMETER
4"	1/2"
6"	3/4"
8"	3/4"
12"	1"

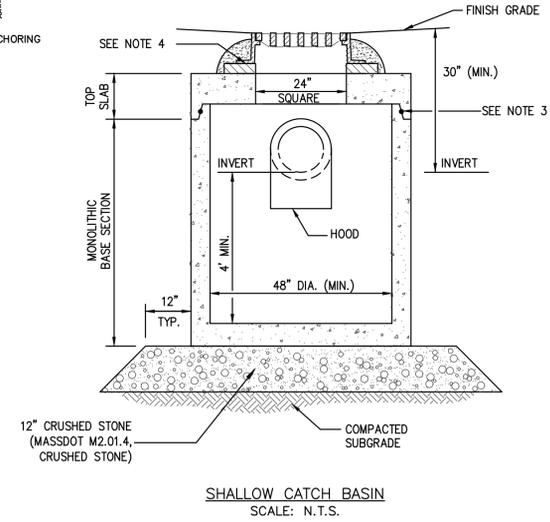
NOTE: WHERE NO PAVED SIDEWALKS EXIST, CURB STOPS AND VALVE BOXES SHALL BE INSTALLED IN THE STREET.

* WHERE THE SIZE OF THE CONNECTION EXCEEDS THAT GIVEN IN THE TABLE A BOSS SHALL BE PROVIDED OR THE TAP SHALL BE MADE BY MEANS OF MULTIPLE CORP. STOPS AND BRANCH FITTINGS, TAPPED TEE, OR TAPPED SADDLE.

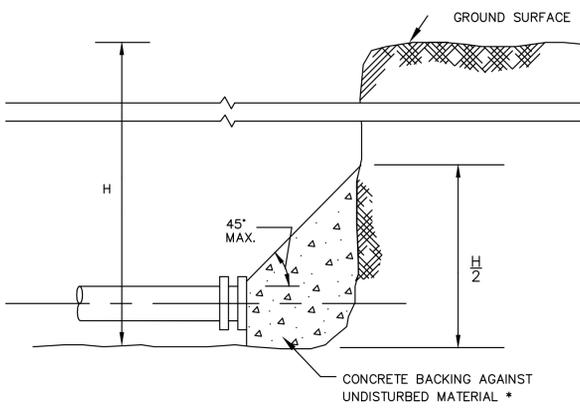


HYDRANT DETAIL
SCALE: N.T.S.

- NOTES:
- ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 - PROVIDE DOGHOUSE OPENING FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS (NON-SHRINK GROUT).
 - JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PERFORMED BUTYL RUBBER.
 - CATCH BASIN FRAME AND GRATE (4" DEPTH) SHALL BE SET IN FULL MORTAR BED.
 - ADJUST TO FINISH GRADE WITH CLAY BRICK AND MORTAR AS REQUIRED.



SHALLOW CATCH BASIN
SCALE: N.T.S.

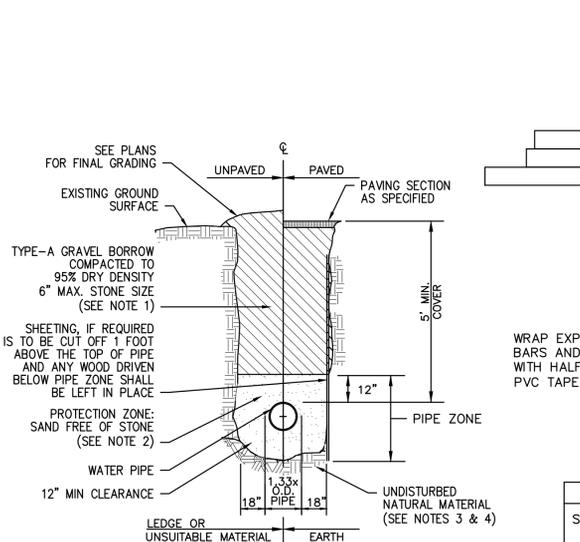


TYPICAL WATER MAIN PLUG
NOT TO SCALE

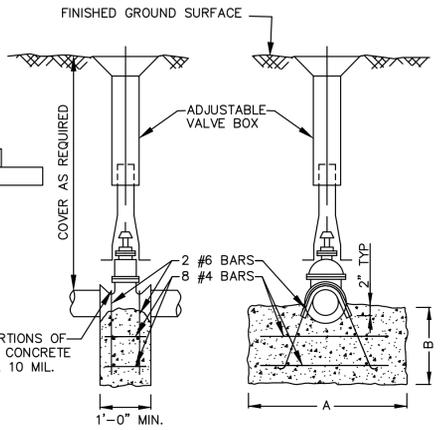
GENERAL NOTES

ALL WATER MAIN MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT RULES AND REGULATIONS.

- IF SHEETING IS USED, IT SHALL BE CUT OFF NO MORE THAN 12" ABOVE TOP OF PIPE.
- ALL PIPES SHALL BE PRESSURE TESTED AT 200 PSI WORKING PRESSURE FOR A MINIMUM DURATION OF TWO HOUR.
- WATER SYSTEM IS TO BE DISINFECTED TO 50 P.P.M. AVAILABLE CHLORINE AND AFTER 24 HOURS TO 25 P.P.M. OR AS REQUIRED BY ABINGTON ROCKLAND JOINT WATER WORKS SUPERINTENDENT/ENGINEER.
- WATER PIPE IS TO BE CEMENT LINED DUCTILE IRON "TYTON" OR EQUAL TYPE JOINT, CONFORMING TO A.N.S.I./A.W.W.A. C150/A21.50, CLASS 52, AS APPROVED BY THE ABINGTON ROCKLAND JOINT WATER WORKS SUPERINTENDENT/ENGINEER.
- ALL PIPING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH A.W.W.A. STANDARDS PRIOR TO PAVING IF PAVING ABOVE TRENCH IS REQUIRED.
- BACKFILL IS TO BE COMPACTED TO 90% MAXIMUM DRY DENSITY BY AASHTO T-180 D.
- ALL WATER PIPE SHALL BE LAID WITH A MINIMUM OF 5 FEET OF COVER OF APPROVED MATERIALS.
- ALL HYDRANT LOCATIONS ARE TO BE APPROVED BY FIRE DEPARTMENT.
- RESULTS FROM PRESSURE TESTING AND DISINFECTION SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC WORKS FOR APPROVAL PRIOR TO WATER BEING TURNED ON.
- ALL WORK SHALL BE IN CONFORMANCE WITH ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT STANDARDS.
- ALL PERMITS REQUIRED FOR STREET OPENINGS AND WATER MAIN TAPPING MUST BE OBTAINED.
- NO WATER WILL BE TURNED ON IN THE PROJECT WITHOUT ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT APPROVAL.



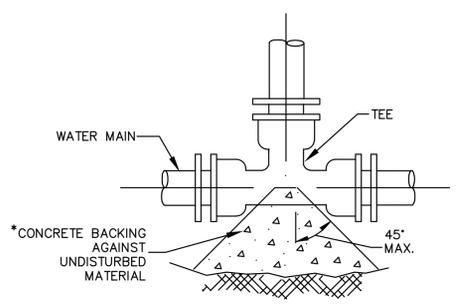
TYPICAL WATER TRENCH DETAIL
SCALE: N.T.S.



WATER GATE DETAIL
NOT TO SCALE

SIZE OF GATE VALVE	ANCHOR BLOCK DIMENSIONS (FT.)		
	A	B	
		200 PSI TEST	250 PSI TEST
3"	1.5	1.5	2.0
4"	2.0	1.5	2.0
6"	3.0	1.5	2.0
8"	3.0	1.5	2.0
10"	3.0	2.0	2.5
12"	3.5	2.0	2.5

- NOTES:
- FLANGES, BOLTS, & NUTS SHALL BE KEPT CLEAR OF CONCRETE
 - VALVES SHALL OPEN TO THE RIGHT.



TYPICAL WATER MAIN THRUST BLOCK DETAILS
NOT TO SCALE

THRUST BLOCK BEARING AREAS FOR WATER PIPE

TABLE OF BEARING AREAS IN SQ. FT. AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS*			
SIZE OF MAIN (IN.)	90° BEND	TEES AND PLUGS	45° BEND
6	4	2.5	2
8	6	4	3
12	12	9	7
16	21	16	12

* TYPE OF SOIL IS MEDIUM CLAYEY, 6 OR MORE BLOWS PER FOOT, OR LOOSE GRANULAR, 9 OR MORE BLOWS PER FOOT. SOIL CONDITIONS OTHER THAN THOSE GIVEN WILL REQUIRE LARGER BEARING AREAS.

NOTES:

- FOR FITTINGS WITH LESS THAN 45 DEFLECTION, USE BEARING AREAS FOR 45 BEND.
- BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 P.S.F. AND INTERNAL WATER PRESSURE OF 150 P.S.I.G. JOINTS SHALL NOT BE ENCASED IN CONCRETE. BEARING AREAS MAY BE DIRGARGED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND THE ROCK FACE.
- THE CONTRACTOR SHALL SUBMIT 2 WEEKS IN ADVANCE OF PLACEMENT, WORKING DRAWINGS FOR EACH THRUST BLOCK TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
- ALL TEES, GATE VALVES, HYDRANTS AND FITTINGS SHALL BE MECHANICAL JOINTS WITH MEGA-LUGS.
- THRUST BLOCKS SHALL BE BARREL BLOCKS.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDEN ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM

MG
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www.mckeng.com

SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

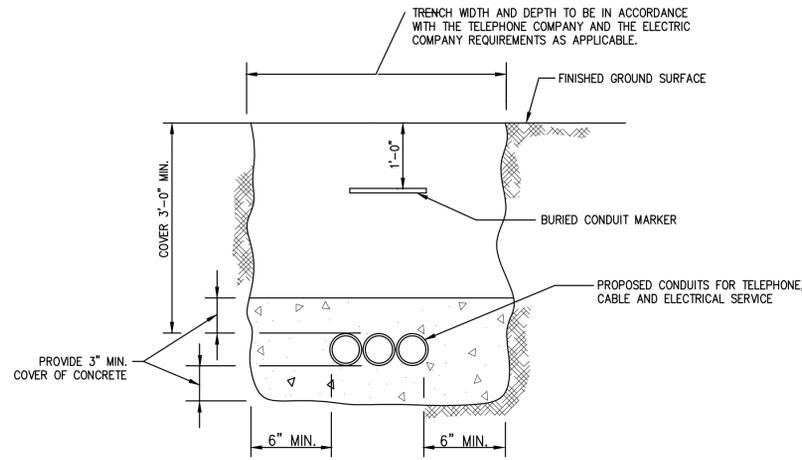
PROFESSIONAL ENGINEER:
BRADLEY C. MCKENZIE
CIVIL ENGINEER
No. 30911
REGISTERED PROFESSIONAL ENGINEER
STATE OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

DRAWN BY: ESS
DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
SCALE:
PROJECT NO.: 220-163
DWG. TITLE:

CONSTRUCTION DETAILS

DWG. NO.: D-1

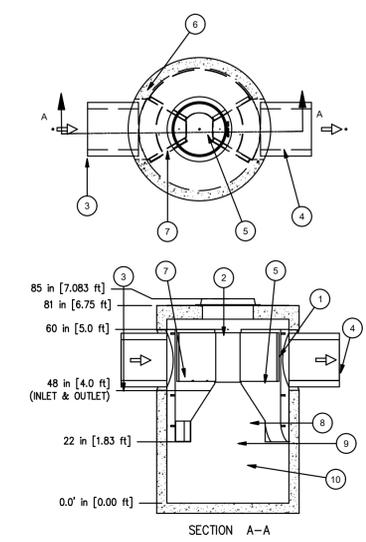


TYPICAL ELECTRIC/TELEPHONE/CABLE CONDUIT (US-UTILITY SERVICE)
SCALE: N.T.S.

Hydro
International
Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

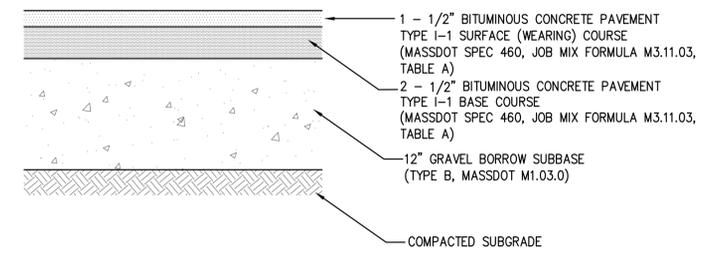
MANHOLE WALL AND SLAB THICKNESS ARE NOT TO SCALE.
CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.
CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASING UNIT TO FABRICATION.

ITEM	QTY	DESCRIPTION	SIZE (in)
1	2	I.D. CONCRETE MANHOLE	48
2	2	INLET CHUTE (W/ FLOATABLES TRAP)	
3	2	OUTLET CHUTE	
4	2	INLET PIPE (BY OTHERS)	12
5	2	OUTLET PIPE (BY OTHERS)	12
6	2	HIGH FLOW BYPASS	
7	2	FRAME AND COVER (OR GRATE)	

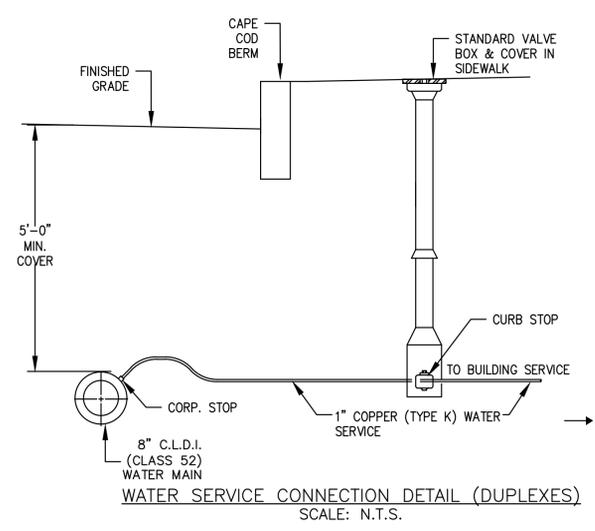


4' DIAMETER FIRST DEFENSE UNIT (FD-4HC)
N.T.S.

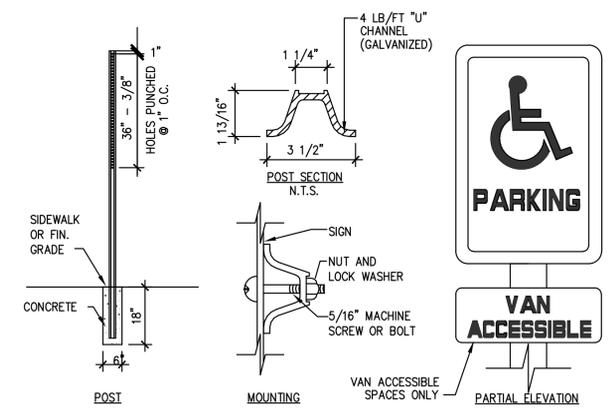
- NOTES:
- ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 - PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 - JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
 - CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)



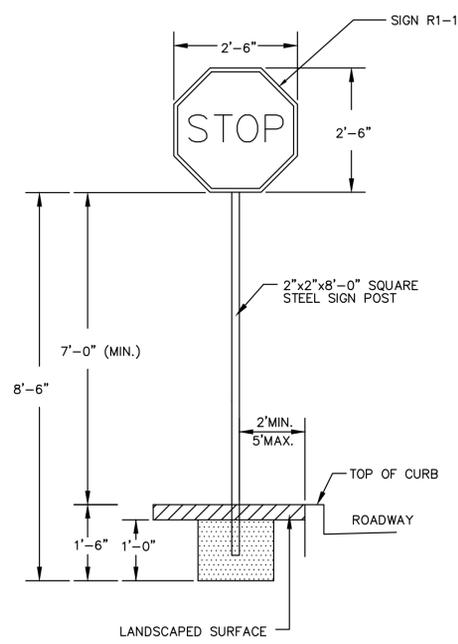
PARKING AREA PAVEMENT DETAIL
SCALE: N.T.S.



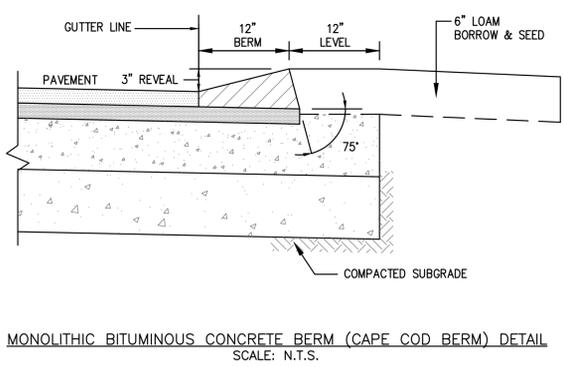
WATER SERVICE CONNECTION DETAIL (DUPLICES)
SCALE: N.T.S.



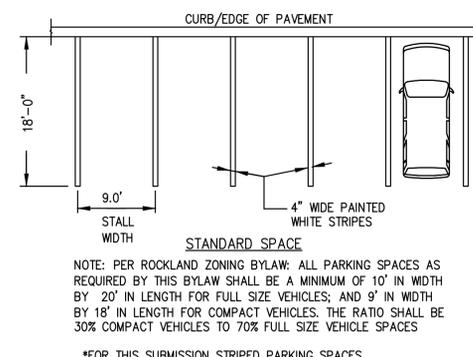
SIGN DETAIL
SCALE: N.T.S.



STOP SIGN DETAIL
SCALE: N.T.S.

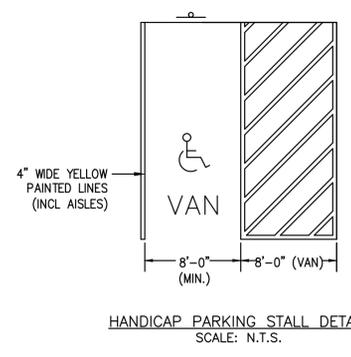


MONOLITHIC BITUMINOUS CONCRETE BERM (CAPE COD BERM) DETAIL
SCALE: N.T.S.

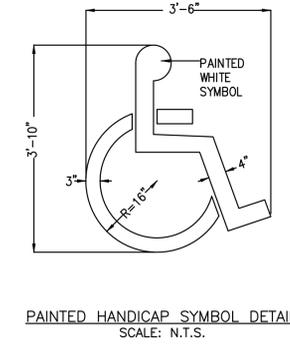


NOTE: PER ROCKLAND ZONING BYLAW: ALL PARKING SPACES AS REQUIRED BY THIS BYLAW SHALL BE A MINIMUM OF 10' IN WIDTH BY 20' IN LENGTH FOR FULL SIZE VEHICLES; AND 9' IN WIDTH BY 18' IN LENGTH FOR COMPACT VEHICLES. THE RATIO SHALL BE 30% COMPACT VEHICLES TO 70% FULL SIZE VEHICLE SPACES
*FOR THIS SUBMISSION STRIPED PARKING SPACES SHALL BE COMPACT.

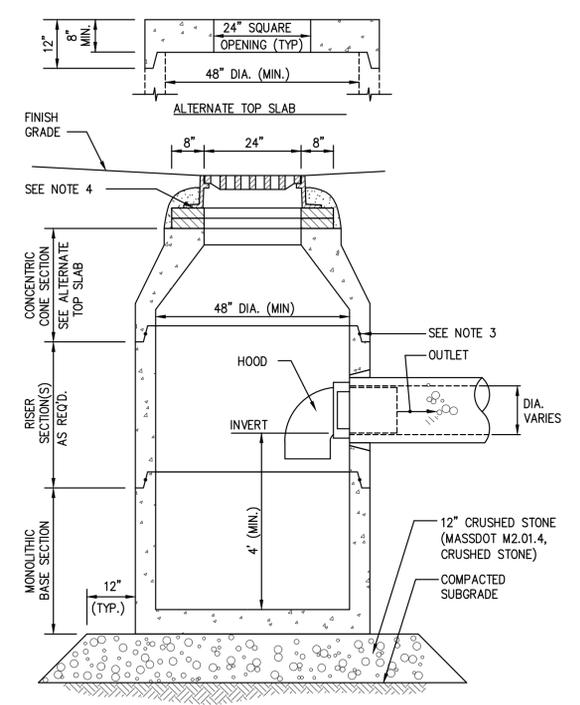
TYPICAL STRIPING DETAILS
SCALE: N.T.S.



HANDICAP PARKING STALL DETAIL
SCALE: N.T.S.



PAINTED HANDICAP SYMBOL DETAIL
SCALE: N.T.S.



CATCH BASIN W/HOOD
SCALE: N.T.S.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM

MG
MCKENZIE
ENGINEERING GROUP
Assinippi Office Park
150 Longwater Drive, Suite 101
Norwell, MA 02061
P: 781.792.3900
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www.mckeng.com

SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

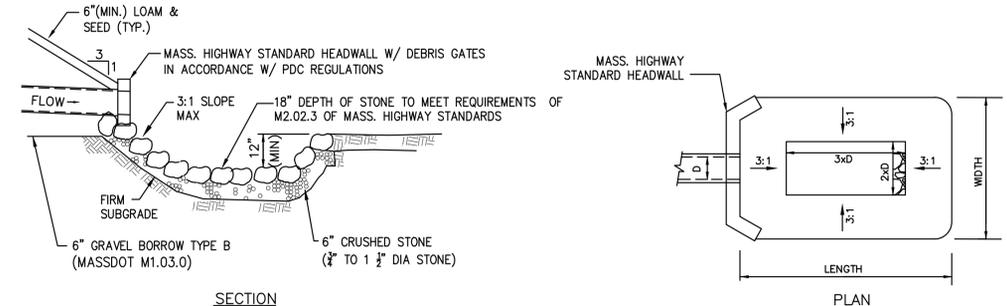
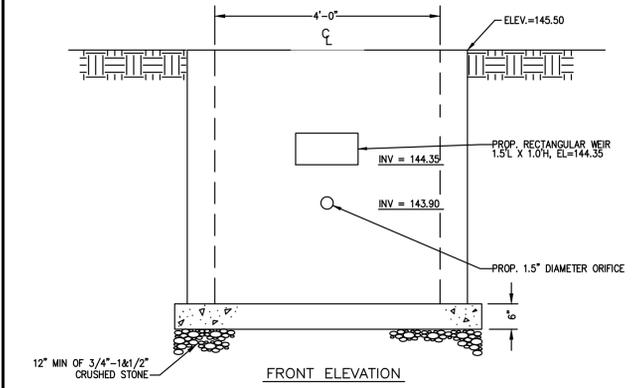
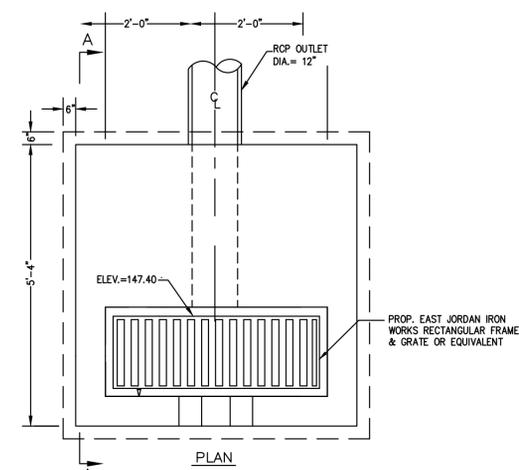
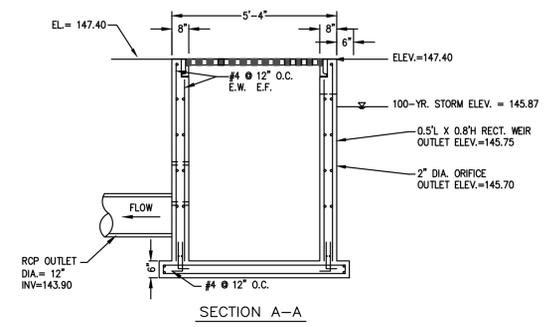
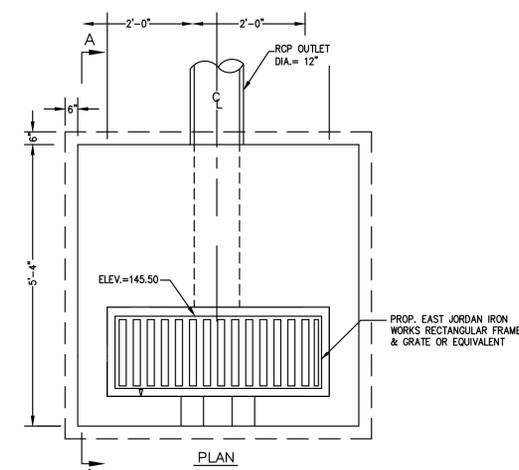
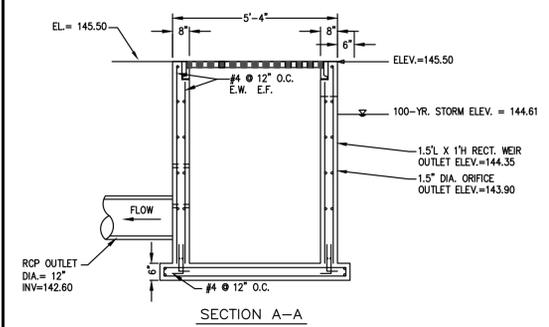
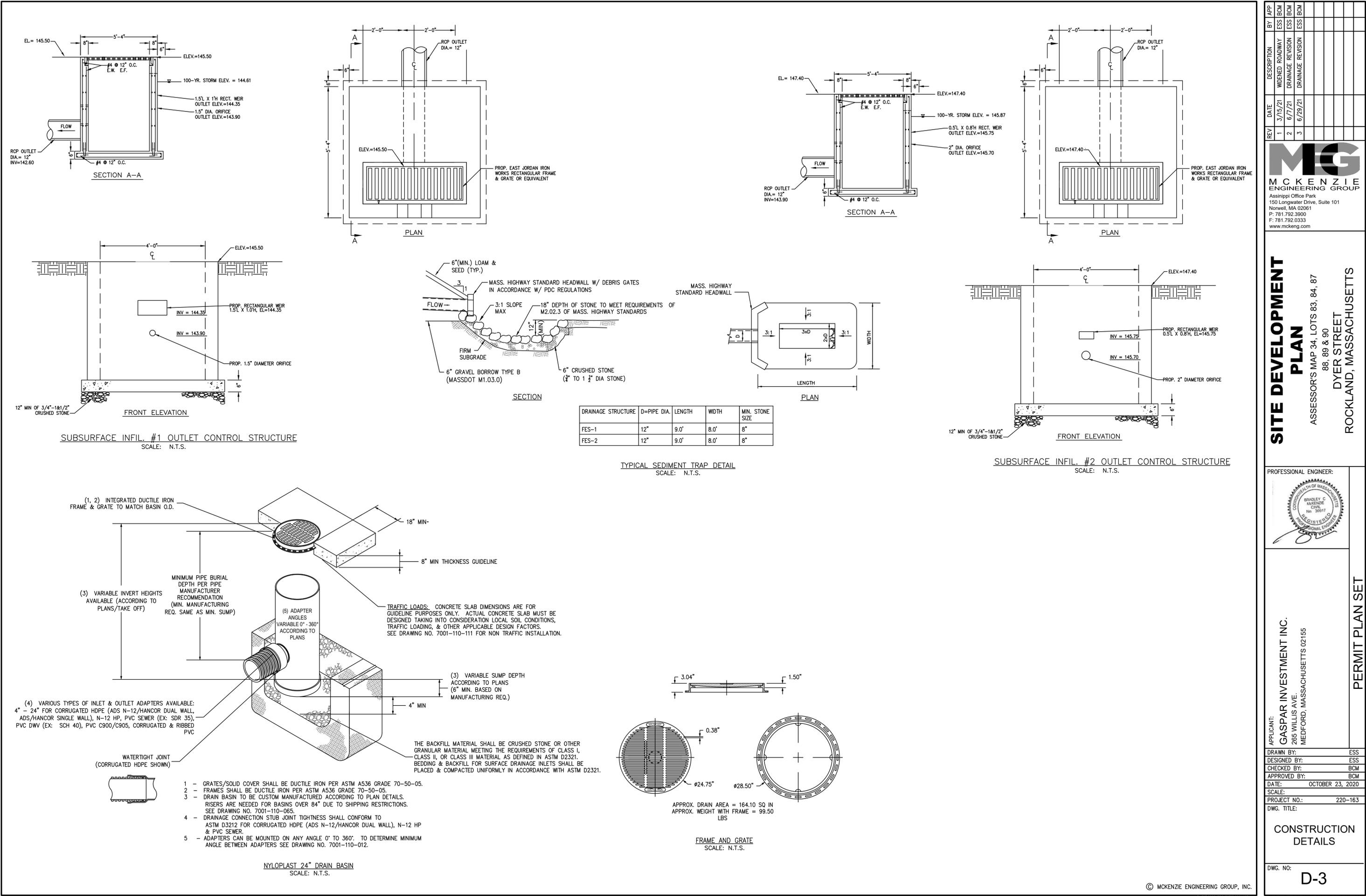
PROFESSIONAL ENGINEER:

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

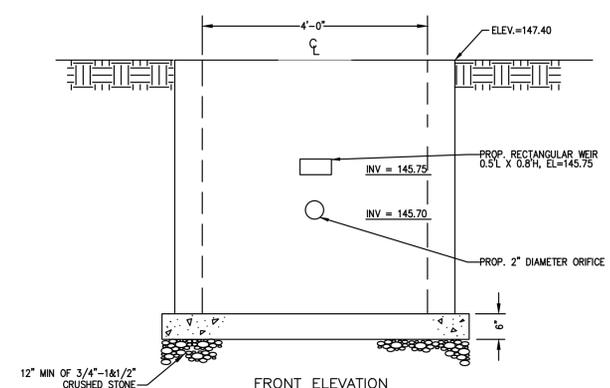
DRAWN BY: ESS
DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
SCALE:
PROJECT NO.: 220-163
DWG. TITLE:

CONSTRUCTION DETAILS

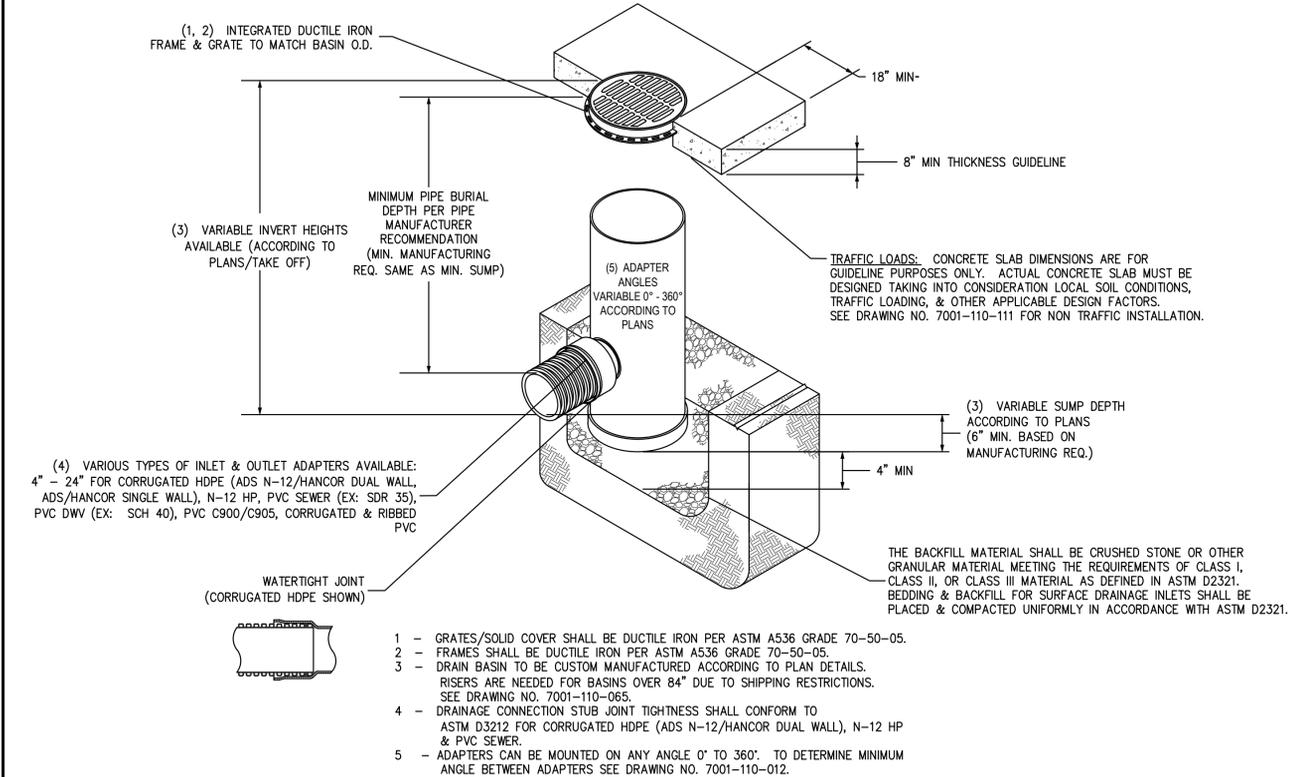
DWG. NO.: D-2



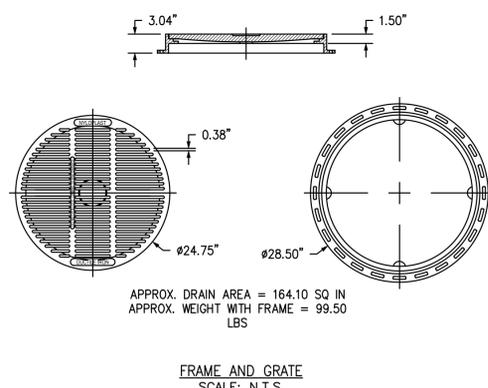
TYPICAL SEDIMENT TRAP DETAIL
SCALE: N.T.S.



SUBSURFACE INFIL. #2 OUTLET CONTROL STRUCTURE
SCALE: N.T.S.



NYLOPLAST 24" DRAIN BASIN
SCALE: N.T.S.



FRAME AND GRATE
SCALE: N.T.S.

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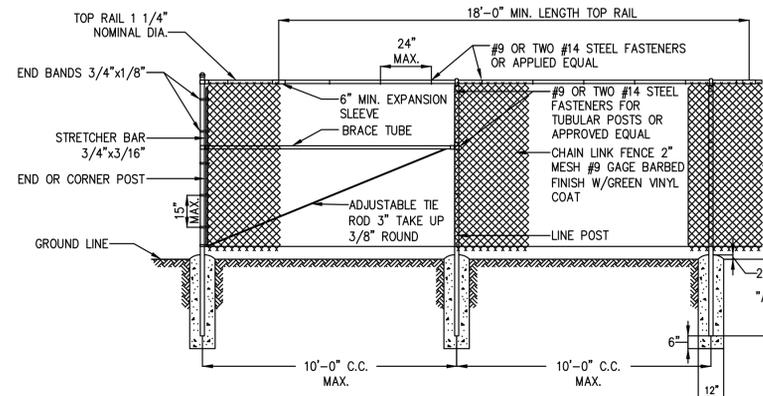
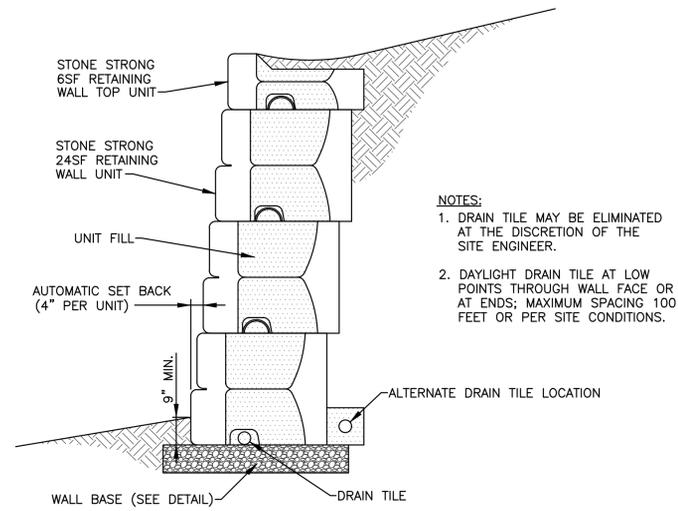
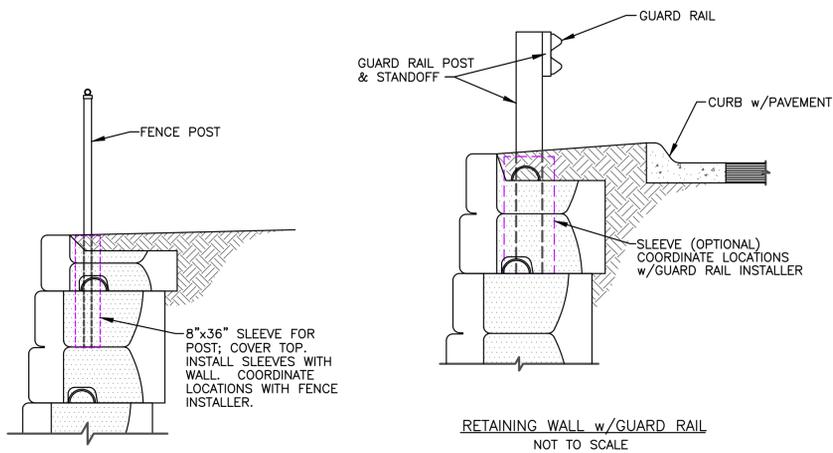
PROFESSIONAL ENGINEER:

APPLICANT:
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265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

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CONSTRUCTION DETAILS

DWG. NO.: **D-3**



END OR CORNER POSTS:
NOMINAL 2" DIAMETER GALVANIZED STEEL PIPE, OR 2 1/2"x2"H SECTION.

LINE POSTS:
NOMINAL 1-1/2" DIAMETER GALVANIZED STEEL PIPE OR 1-7/8"x1-5/8" STEEL H SECTION.

BRACE TUBES NOMINAL 1-1/4" DIA. GALVANIZED STEEL PIPE.

LINE GATE & END POST BASE ("A") 2'-6" FOR 3 FT. & 4 FT. FENCE. 3'-0" FOR 6 FT. FENCE. 5'-0" FOR ALL OTHERS.

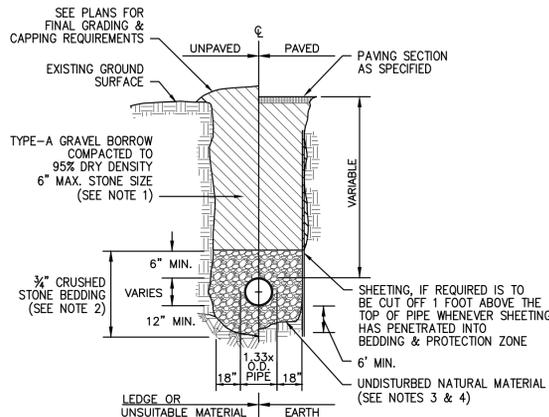
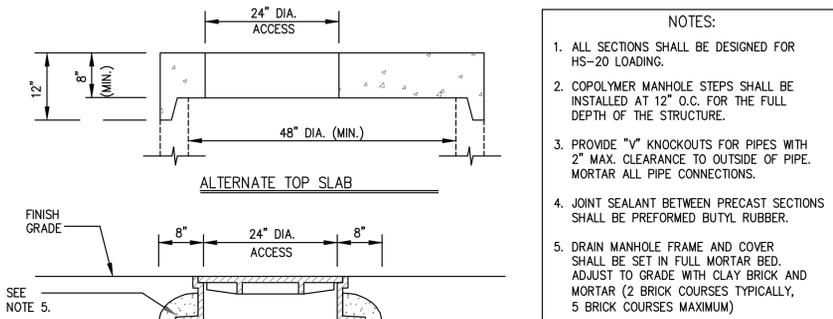
STRETCHER BARS LENGTH TO BE 1 INCH LESS THAN FULL HEIGHT OF FABRIC. ONE STRETCHER BAR FOR EACH GATE & END POST & TWO STRETCHER BARS FOR CORNER & BRACING.

NOTES:
1. ROUND BASES MAY BE SUBSTITUTED FOR THE SQUARE BASES SHOWN BY USING FIBER TUBULAR FORMS.
2. BRACING NOT REQUIRED FOR 3'0" & 4'0" FENCE.
CONCRETE TO BE 4,000 P.S.I. FIBER REINFORCED.

RETAINING WALL FENCE SLEEVE
NOT TO SCALE

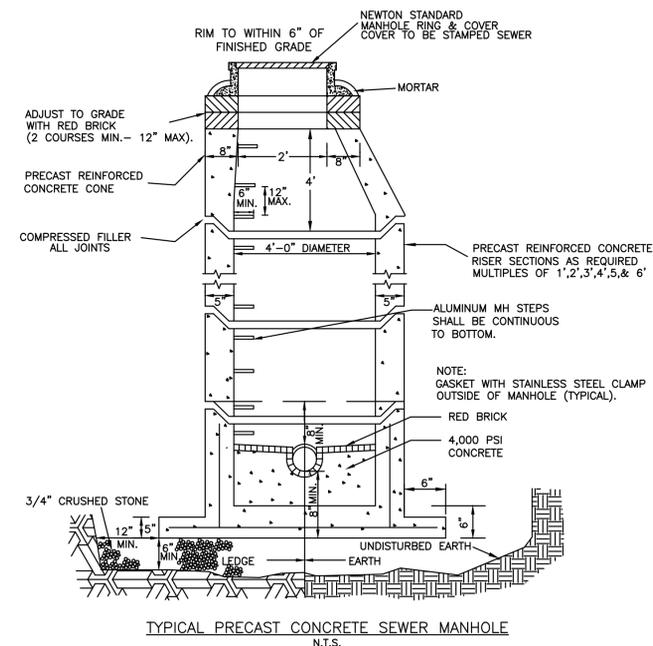
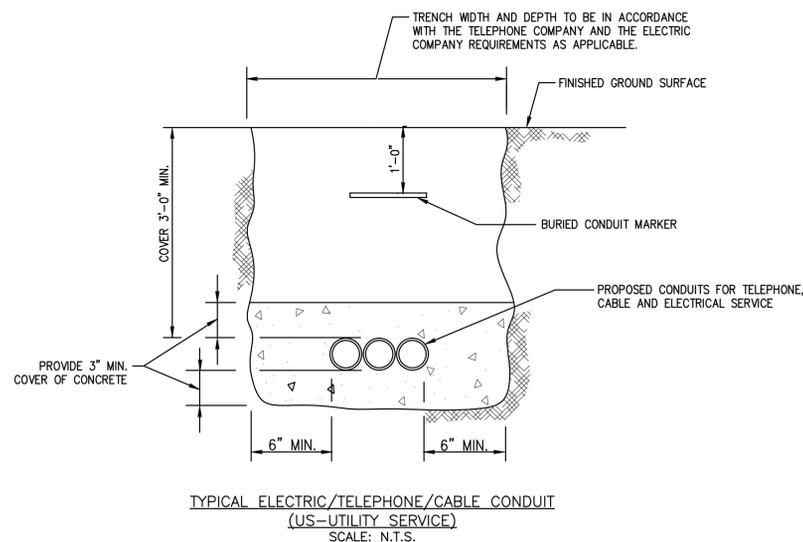
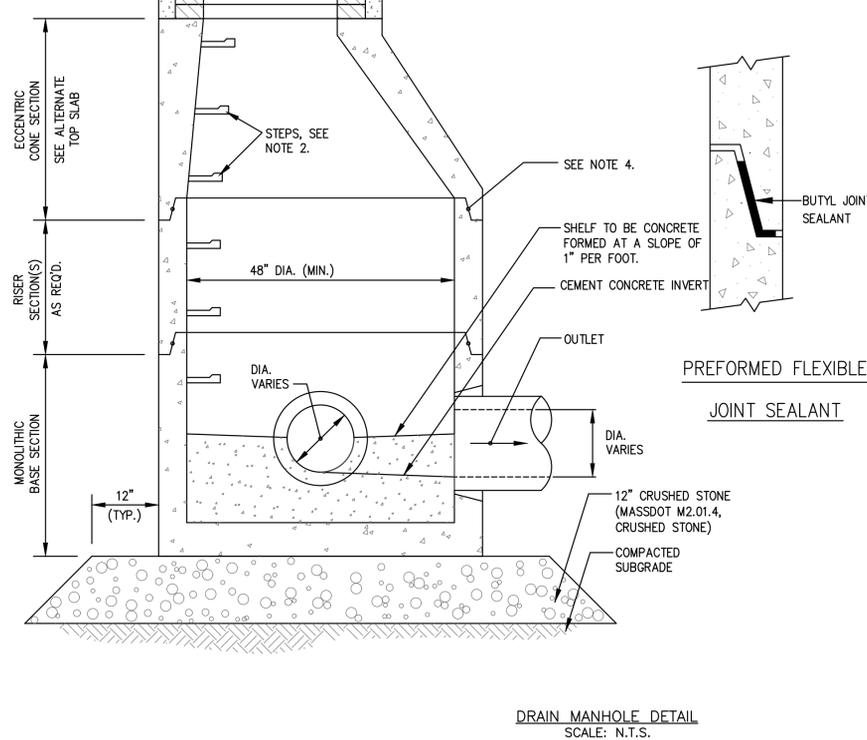
GRAVITY RETAINING WALL CROSS SECTION
NOT TO SCALE

TYPICAL CHAIN LINK FENCE DETAIL
SCALE: N.T.S.



NOTES:
1. GRAVEL BORROW SHALL CONFORM TO MASSDOT SPECIFICATION M1.03.0.
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASSDOT SPECIFICATION M2.01.1.
3. SUBGRADE SHALL CONSIST OF NATIVE SOIL OR IMPORTED SOIL CONFORMING TO THE MASSDOT SPECIFICATION FOR ORDINARY BORROW AND SHALL BE FREE OF ANY UNSUITABLE SOILS OR MATERIAL.
4. UNSUITABLE SOIL OR MATERIAL SHALL INCLUDE BUT NOT BE LIMITED TO PEAT, MUCK, BROKEN PAVEMENT, STUMPS, LOGS, CONSTRUCTION DEBRIS OR ANY OTHER DELETERIOUS MATERIAL.

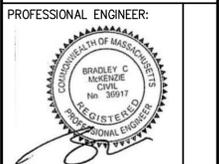
GRAVITY SEWER TRENCH DETAIL
SCALE: N.T.S.



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SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
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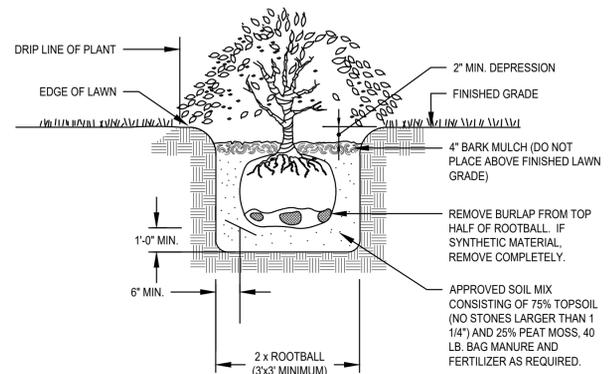
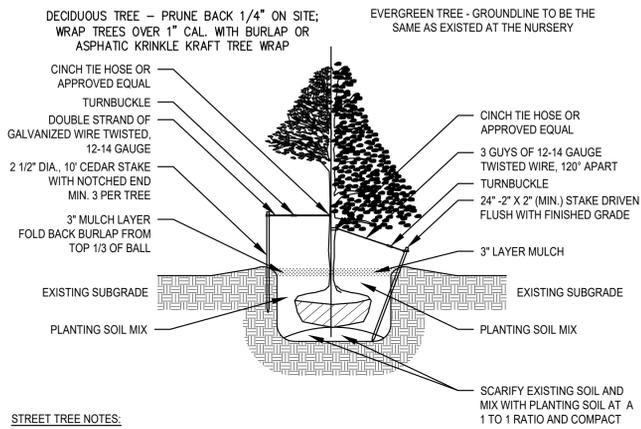
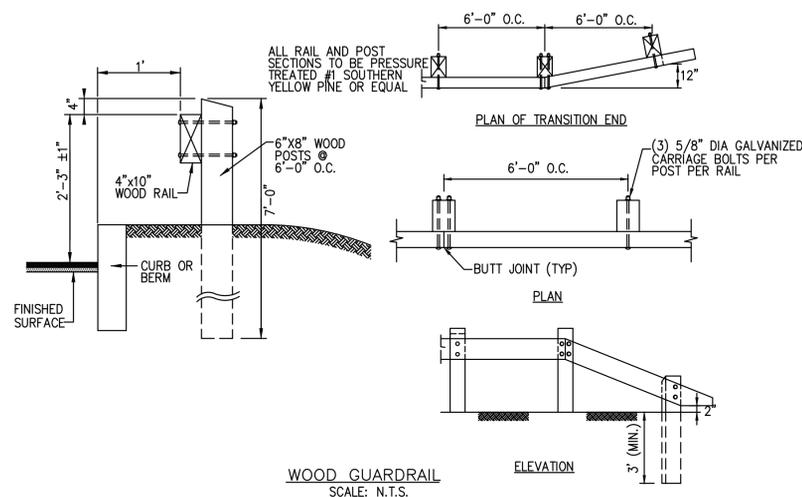


APPLICANT:
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265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

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DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
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PROJECT NO.: 220-163
DWG. TITLE:

CONSTRUCTION DETAILS

DWG. NO.: **D-4**



SEEDING SPECIFICATIONS

SEEDING RECOMMENDATIONS
1. SEEDBED PREPARATION

- A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
- B. STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT FOUR INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

2. ESTABLISHING A STAND

- A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:

AGRICULTURAL LIMESTONE:	2 TONS PER ACRE OR 100 LBS. PER SQ. FT.
NITROGEN (N):	50 LBS. PER ACRE OR 1.1 LBS. PER 1000 SQ. FT.
PHOSPHATE (P O):	100 LBS. PER ACRE OR 2.2 LBS. PER 1000 SQ. FT.
POTASH (K O):	100 LBS. PER ACRE OR 2.2 LBS. PER 1000 SQ. FT.

(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10 FERTILIZER)

- B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING, AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 0.25 INCH OF SOIL OR LESS, BY CULTIVATING OR RAKING.
- C. REFER TO SEEDING RATES AND SEEDING GUIDES FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING.
- D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.

3. MULCH

- A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
- B. MULCH WILL BE HELD IN PLACE USING TECHNIQUES AS SPECIFIED IN THE "BEST MANAGEMENT PRACTICES OPERATION AND MAINTENANCE PLAN"

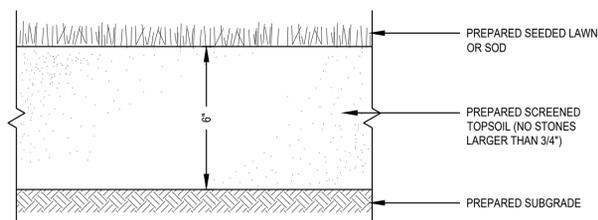
4. MAINTENANCE TO ESTABLISH A STAND

- A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
- B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
- C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

NOTES:

- 1. TOP OF LOAM (TOPSOIL) IS FINISHED GRADE.
- 2. TOPSOIL SHALL CONTAIN BETWEEN 5% AND 12% ORGANIC MATTER AND SHALL HAVE A MAXIMUM STONE SIZE OF 3/4" AND SHALL CONFORM TO THE FOLLOWING GRADATION:

SIEVE	% PASSING
1 1/4 INCH	100
No. 4	85-100
No. 40	60-85
No. 100	38-60
No. 200	28-40



SEEDING RATES

POUND / ACRE POUNDS / 1,000 S.F.

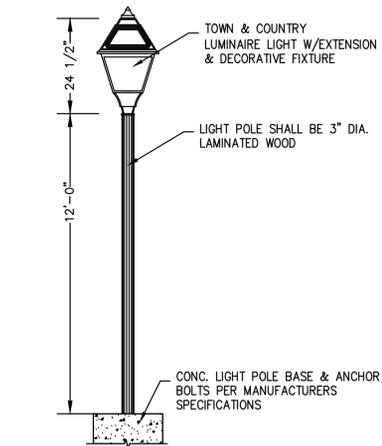
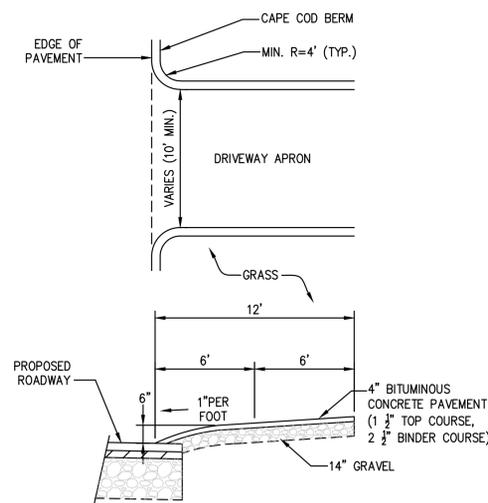
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
REDTOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
BIRDSFOOT TREFLOIL	15	0.35
TOTAL	40	0.95
C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDSFOOT TREFLOIL	8	0.20
TOTAL	48	1.10
D. BIRDSFOOT TREFLOIL	10	0.25
REDTOP	5	0.10
REED CANARY GRASS	15	0.35
TOTAL	30	0.70
E. TALL FESCUE	20	0.45
FLATPEA	30	0.75
TOTAL	50	1.20
F. CREEPING RED FESCUE 1/	85	2.00
KENTUCKY BLUEGRASS 1/	85	2.00
TOTAL	170	4.00
G. TALL FESCUE 1/	150	3.60
TEMPORARY SEEDING RATES		
H. WINTER RYE	112	2.50 (BEST FOR FALL SEEDING, AUG 15 TO SEPT. 5)
OATS	80	2.00 (BEST FOR SPRING SEEDING, BEFORE MAY 15)
ANNUAL RYEGRASS	40	1.00 (BEST FOR FALL SEEDING, AUG 15 TO SEPT. 15)
TOTAL	232	5.50 (MAY BE USED EARLY SPRING ALSO)

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	E
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	D
LAWN AREAS	F

DECIDUOUS AND EVERGREEN TREE PLANTING DETAIL
SCALE: N.T.S.



NOTE: ALL LIGHT BULBS SHALL BE DARK-SKY COMPLIANT AND REFLECTED DOWN TO PREVENT LIGHT POLLUTION.

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3	6/29/21	DRAINAGE REVISION

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SITE DEVELOPMENT PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C. MCKENZIE
CIVIL
No. 30917
REGISTERED PROFESSIONAL ENGINEER
STATE OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
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DESIGNED BY: ESS
CHECKED BY: BCM
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CONSTRUCTION DETAILS

DWG. NO.: D-5

EROSION AND SEDIMENTATION CONTROL

- WIDELY ACCEPTED PRACTICES FOR REDUCING EROSION AND SEDIMENTATION WILL BE EMPLOYED IN THE DEVELOPMENT OF THIS SITE.
- THE DEVELOPMENT OF THE SITE HAS BEEN PLANNED TO ENHANCE THE EXISTING TOPOGRAPHY AND VEGETATIVE COVER. ALL NATURAL DRAINAGE PATTERNS OF THE SITE HAVE BEEN MAINTAINED.
- STEEP SLOPES, WHERE POSSIBLE, WILL NOT BE DISTURBED.
- NATURAL WATERWAYS WILL BE PRESERVED AND PROTECTED, AND EXISTING VEGETATION WILL BE RETAINED AND PROTECTED TO THE EXTENT POSSIBLE.
- THE ROADWAY CONFORMS TO EXISTING LAND CONTOURS WHERE PRACTICAL.
- THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED LAND TO THE EXTENT FEASIBLE.
- SEDIMENT CONTROL MEASURES WILL BE APPLIED TO CONTROL ANY SEDIMENTS THAT MAY BE PRODUCED AS A RESULT OF SITE CONSTRUCTION ACTIVITIES. EROSION AND DEPOSITION OF SEDIMENT WILL BE CLOSELY MONITORED DURING CONSTRUCTION.
- TEMPORARY EROSION CONTROL MEASURES WILL INCLUDE, BUT NOT BE LIMITED TO, STRAWBALE CHECK DAMS, SEDIMENT FOREBAYS, STABILIZED CONSTRUCTION ENTRANCES, FILTER FABRIC SILT FENCES, SEEDING AND MULCHING, AND SEEDED FILTER STRIPS.
- TOPSOIL STRIPPED FROM CUT AND FILL AREAS WILL BE STOCKPILED FOR LOAMING AND SEEDING AT LATER CONSTRUCTION STAGES. THE STOCKPILES SHALL BE LOCATED SO AS TO ACT AS TEMPORARY DIVERSIONS, GENERALLY ON THE UPHILL SLOPE.
- ALL CUT AREAS LOCATED AT TOES OF SLOPES AND DITCHES THAT HAVE GRADES EXCEEDING 5% SHALL BE STABILIZED WITH RIP-RAP. THE RIP-RAP SHALL CONSIST OF 50% STONES GREATER THAN 6" IN SIZE. SWALES SHALL BE 6" IN DEPTH AND APPROXIMATELY 5' IN WIDTH. ALL SLOPES WILL BE BLENDED INTO THE EXISTING TOPOGRAPHY TO MINIMIZE IMPACT.
- SITE DEVELOPMENT WILL NOT COMMENCE UNTIL ALL TEMPORARY EROSION CONTROL MEASURES ARE IN PLACE. THESE MEASURES SHALL BE EMPLOYED UNTIL FINAL PAVING AND ADEQUATE VEGETATION HAS BEEN ESTABLISHED.
- REFER TO CONSTRUCTION PHASE BEST MANAGEMENT PRACTICES AS SPECIFIED IN "BEST MANAGEMENT PRACTICES OPERATION AND MAINTENANCE PLAN" PREPARED BY MCKENZIE ENGINEERING GROUP, INC. FOR STRUCTURAL STABILIZATION AND DUST CONTROL EROSION AND SEDIMENTATION CONTROL MEASURES.
- STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESH), MULCHING, AND PERMANENT SEEDING.

CONSTRUCTION PHASE BMP OPERATION & MAINTENANCE:

STRUCTURAL PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE SILT SOCK EROSION CONTROL BARRIERS, STABILIZED CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION SWALES WITH CHECK DAMS, TEMPORARY SEDIMENT BASINS, AND INLET PROTECTION.

STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESH), MULCHING, AND PERMANENT SEEDING.

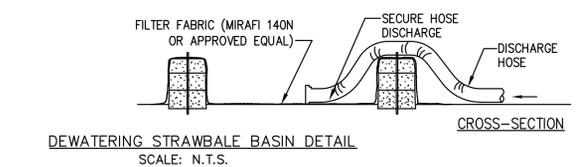
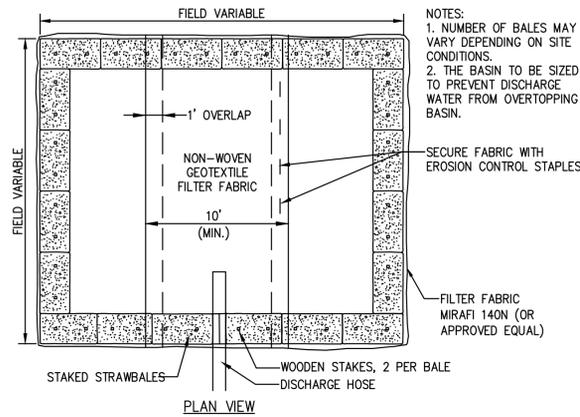
OPERATOR PERSONNEL AND/OR ITS CONSULTANTS MUST INSPECT THE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 1/2 INCH OR GREATER. THE INSPECTOR SHOULD REVIEW THE EROSION AND SEDIMENT CONTROLS WITH RESPECT TO THE FOLLOWING:

- WHETHER OR NOT THE BMP WAS INSTALLED/PERFORMED CORRECTLY.
- WHETHER OR NOT THERE HAS BEEN DAMAGE TO THE BMP SINCE IT WAS INSTALLED OR PERFORMED.
- WHAT SHOULD BE DONE TO CORRECT ANY PROBLEMS WITH THE BMP.

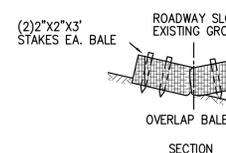
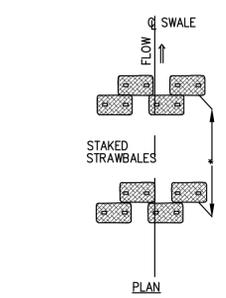
THE INSPECTOR SHALL COMPLETE THE INSPECTION SCHEDULE AND EVALUATION CHECKLIST FOR FINDINGS AND SHOULD REQUEST THE REQUIRED MAINTENANCE OR REPAIR. THE CHECKLIST IS PROVIDED WITHIN THE OPERATION AND MAINTENANCE PLAN.

THE TEMPORARY SEDIMENT BASINS SHALL BE INSPECTED AND CLEANED IF REQUIRED PRIOR TO ANY PREDICTED LARGE STORM EVENT.

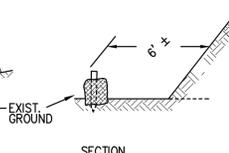
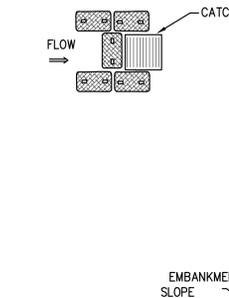
ALL SLOPES EXCEEDING 15% RESULTING FROM SITE GRADING SHALL BE BOTH COVERED WITH FOUR INCHES OF TOPSOIL AND PLANTED WITH A VEGETATED COVER SUFFICIENT TO PREVENT EROSION.



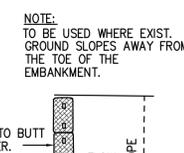
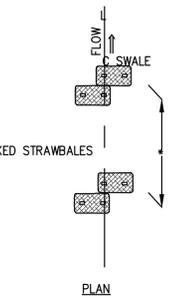
NOTE: TO BE USED IN LOCATIONS WHERE EXIST. GROUND SLOPES IN TOWARD THE TOE OF THE EMBANKMENT. OR IN WIDE DITCHES.



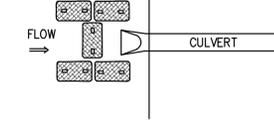
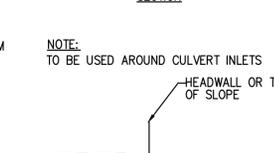
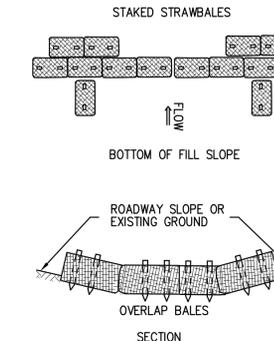
NOTE: TO BE USED AROUND CATCH BASINS.



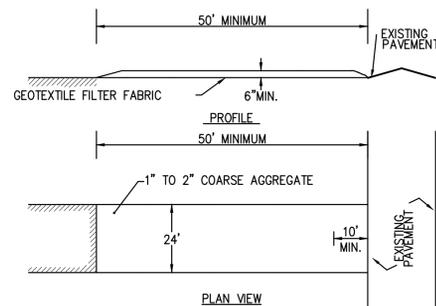
NOTE: TO BE USED IN LOCATIONS WHERE EXIST. GROUND SLOPES IN TOWARD THE TOE OF THE EMBANKMENT. OR IN NARROW DITCHES.



NOTE: TO BE USED AT BOTTOM OF FILL SLOPE WHERE HEAVY FLOW MAY BE ANTICIPATED.



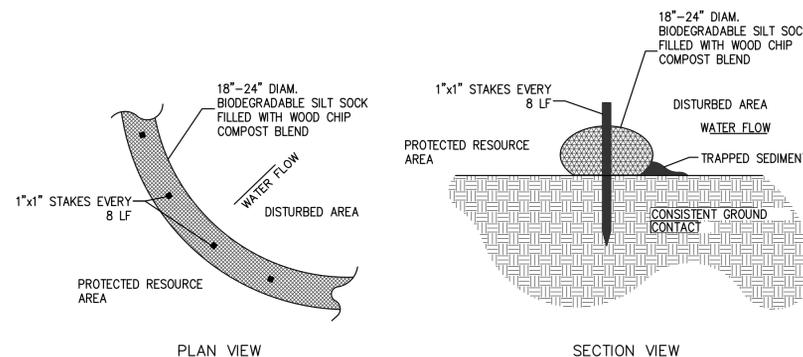
TEMPORARY EROSION CONTROL SCALE: N.T.S.



STABILIZED CONSTRUCTION ENTRANCE (SCE) DETAIL SCALE: N.T.S.

(SCE) CONSTRUCTION SPECIFICATIONS:

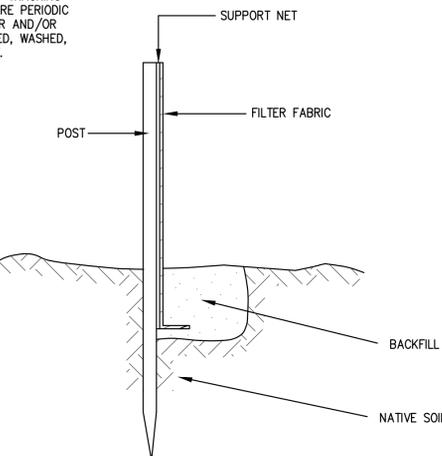
- STONE FOR A STABILIZATION CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE.
- THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT A 30 FOOT MINIMUM LENGTH WOULD APPLY.
- THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN A FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
- ALL SURFACE WATER THAT IS FLOWING TO OR DEVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED PROMPTLY.



SILT SOCK DETAIL SCALE: N.T.S.

CONSTRUCTION NOTES:

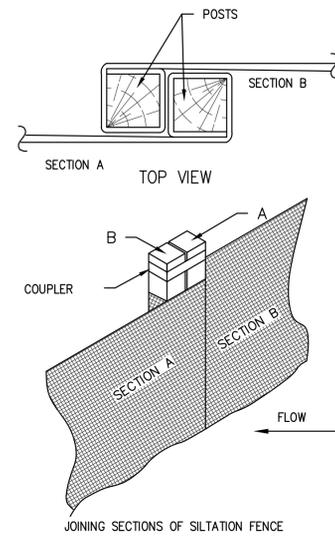
- SILT SOCKS SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING OR LAPPING THE ADJACENT SECTIONS.
- SILT SOCKS SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN EVERY 8 LF.
- INSPECTION SHALL BE FREQUENT, AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS REQUIRED.
- SILT SOCKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.



SILTATION FENCE SCALE: N.T.S.

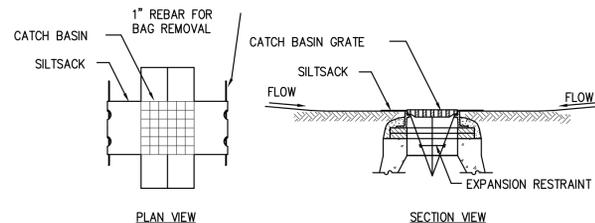
CONSTRUCTION NOTES:

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



NOTES:

- INSTALL SILT SACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND STRAWBALES HAVE BEEN REMOVED.
- GRATE TO BE PLACED OVER SILT SACK.
- SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.



SILT SACK SEDIMENT TRAP SCALE: N.T.S.

SILT SACK SEDIMENT TRAP CONSTRUCTION NOTES:

- INSTALL SILT SACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND STRAWBALES HAVE BEEN REMOVED.
- GRATE TO BE PLACED OVER SILT SACK.
- SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM



SITE DEVELOPMENT PLAN

ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:



APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

DRAWN BY: ESS
DESIGNED BY: ESS
CHECKED BY: BCM
APPROVED BY: BCM
DATE: OCTOBER 23, 2020
SCALE:
PROJECT NO.: 220-163
DWG. TITLE:

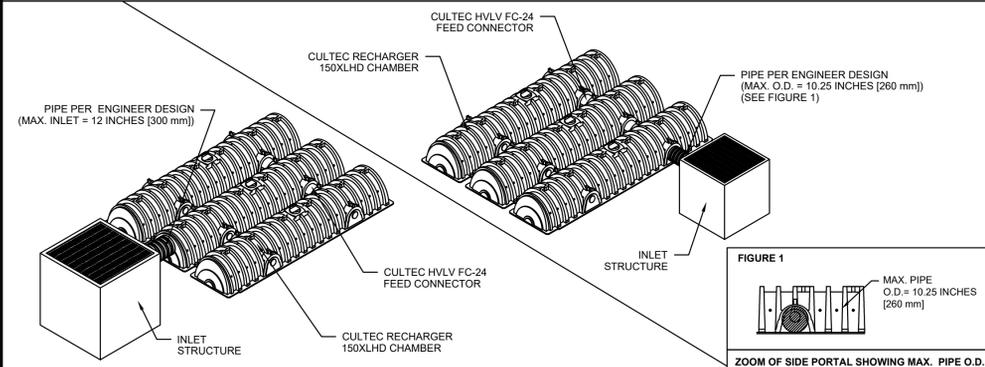
CONSTRUCTION DETAILS

DWG. NO.: D-6

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

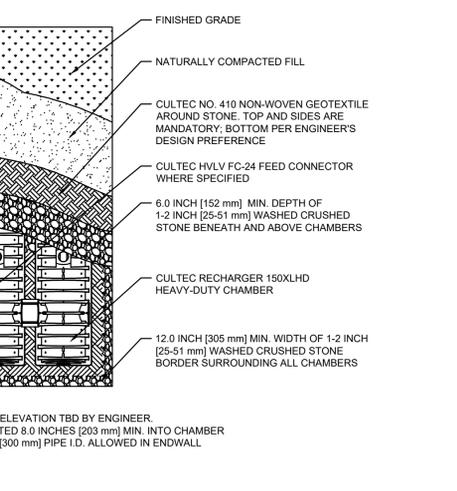
- GENERAL**
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.
- CHAMBER PARAMETERS**
1. THE CHAMBERS WILL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
 2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
 3. THE CHAMBER WILL BE ARCHED IN SHAPE.
 4. THE CHAMBER WILL BE OPEN-BOTTOMED.
 5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
 6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 150XLHD SHALL BE 18.5 INCHES (470 mm) TALL, 33 INCHES (838 mm) WIDE AND 11 FEET (3.35 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 150XLHD SHALL BE 10.25 FEET (3.12 m).
 7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 12 INCHES (305 mm).
 8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL WILL BE 8.5 INCHES (216 mm) HIGH BY 12 INCHES (304 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 10.25 INCHES (260 mm).
 9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
 10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 150XLHD CHAMBER WILL BE 2.605 FT³/ FT (0.246 m³/ m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 150XLHD SHALL BE 27.16 FT³/ UNIT (0.77 m³/ UNIT) - WITHOUT STONE.
 11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³/ FT (0.085 m³/ m) - WITHOUT STONE.
 12. THE RECHARGER 150XLHD CHAMBER WILL HAVE THIRTY DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNITS' CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
 13. THE RECHARGER 150XLHD CHAMBER SHALL HAVE 20 CORRUGATIONS.
 14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
 15. THE RECHARGER 150XLHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END WALLS.
 16. THE RECHARGER 150XLHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
 17. THE RECHARGER 150XLHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
 18. THE RECHARGER 150XLHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
 19. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 150XLHD AND ACT AS CROSS FEED CONNECTIONS.
 20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
 21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
 22. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
 23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
 24. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
 25. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

GENERAL NOTES



CULTEC TYPICAL INLET CONNECTION

150XLHD 4.0



CULTEC RECHARGER 150XLHD HEAVY DUTY PLAN VIEW

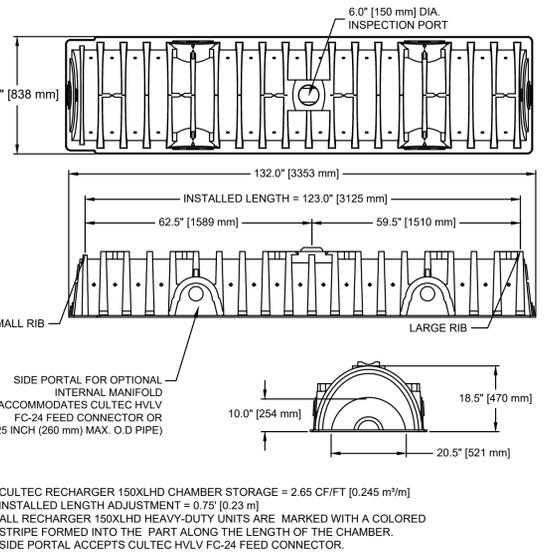
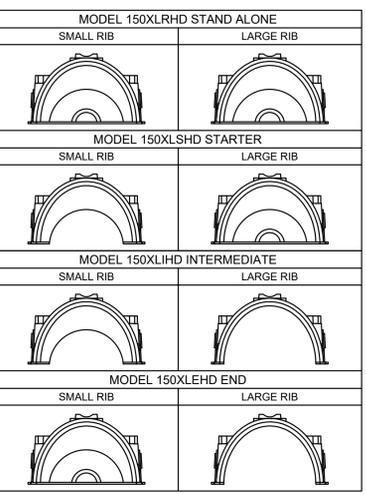
150XLHD 7.0

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P.O. Box 280
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www.cultec.com
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PH: (800) 4-CULTEC
FX: (203) 775-1462
tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

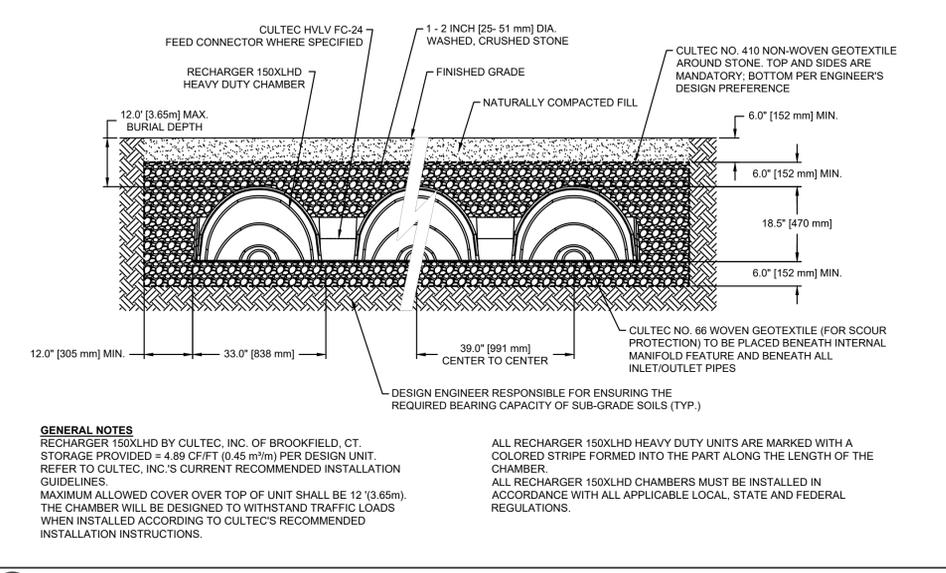
CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

- GENERAL**
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 150XLHD STORMWATER CHAMBERS.
- CHAMBER PARAMETERS**
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
 2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
 3. THE CHAMBER WILL BE ARCHED IN SHAPE.
 4. THE CHAMBER WILL BE OPEN-BOTTOMED.
 5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
 6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³/ FT (0.085 m³/ m) - WITHOUT STONE.
 7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
 8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
 9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
- CULTEC NO. 66™ WOVEN GEOTEXTILE**
- GENERAL**
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.
- GEOTEXTILE PARAMETERS**
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
 2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
 3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1,400 N) PER ASTM D4832 TESTING METHOD.
 4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4832 TESTING METHOD.
 5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
 6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
 7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.68 KN) PER ASTM D4833 TESTING METHOD.
 8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
 9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
 10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
 11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4.0 GPM/FT² (150 LPM/M²) PER ASTM D4491 TESTING METHOD.
 12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
 13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
 14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.



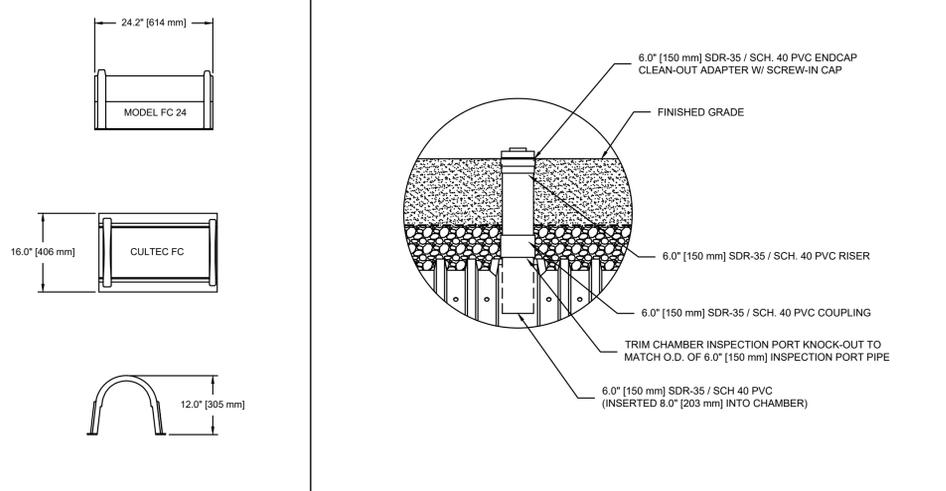
CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW

150XLHD 2.0



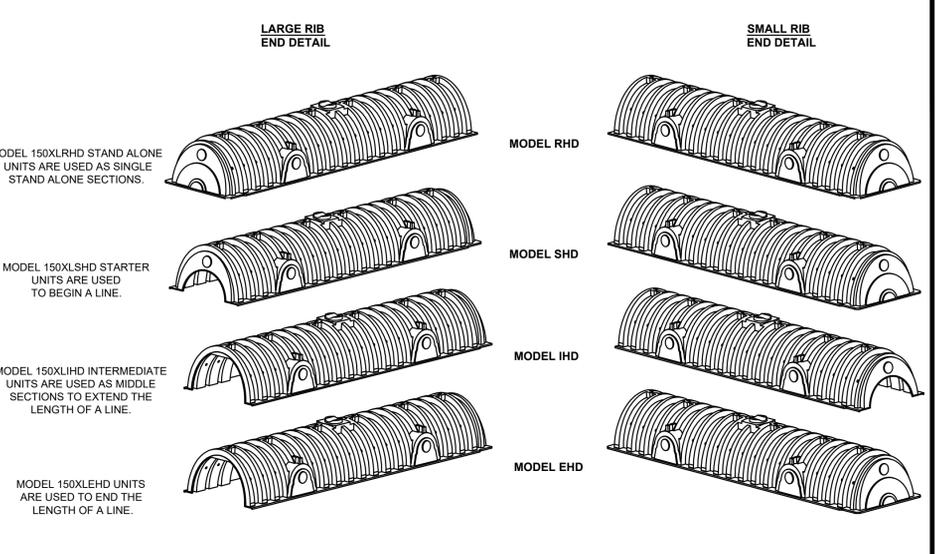
CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL CROSS SECTION

150XLHD 5.0



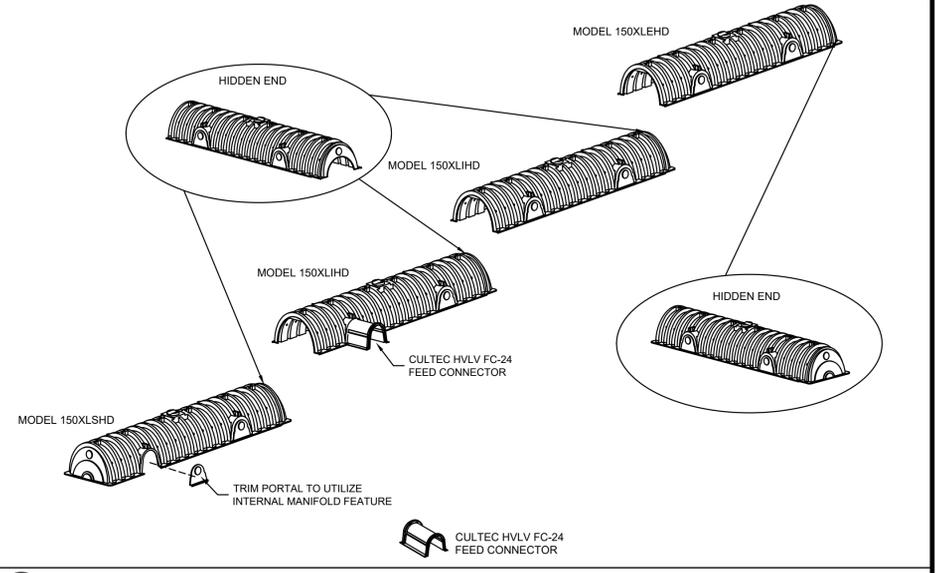
OPTIONAL INSPECTION PORT - ZOOM DETAIL

150XLHD 9.0



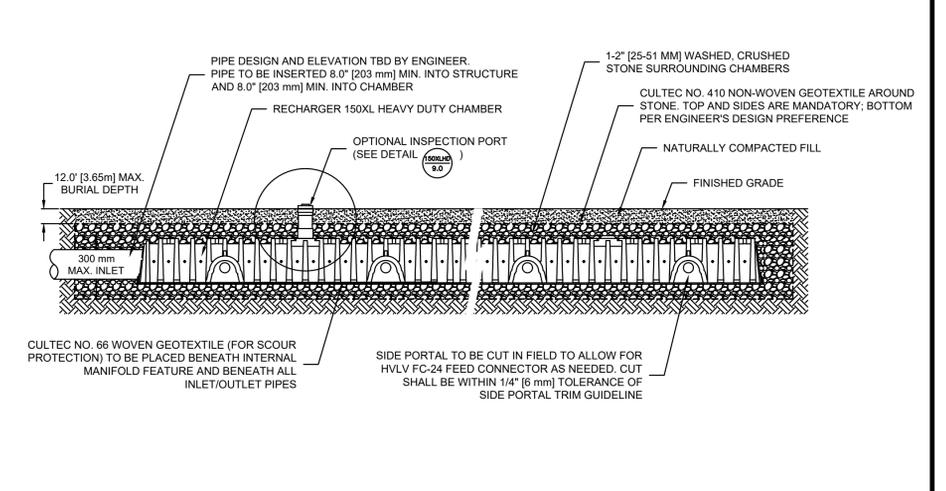
CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION

150XLHD 3.0



CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL INTERLOCK

150XLHD 6.0



CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL

150XLHD 10.0

RECHARGER 150XLHD
DETAIL SHEET
NON-TRAFFIC APPLICATION

CULTEC RECHARGER® 150XLHD	
PROJECT NO:	DATE: 02/2016
DESIGNED BY: CULTEC, INC	DRAWN BY: TECH
SCALE: N.T.S.	SHEET NO: D-7